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STRATEGIC SURVEY OF NORTHEASTERN INDIA

R&A 723

January 19, 1943

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TABLE OF CONTENTS

Page

SECTION III - POPULATION AND SOCIAL CONDITIONS

15. General 1

16. Population 10

17. Ethnic and Social Groups 16

18. Language 21

19. Characteristics of the People 25

20. Living Conditions 29

21. Labor 33

23. Education 40

24. Religion 43

25. Public Order and Police 44

26. Press, Propaganda and Censorship 48

SECTION IV - POLITICAL

27. General 51

28. Government 52

29. Political Parties 59

30. Foreign Policy and International Relations 67

SECTION V - ECONOMIC

31. General 68

32. Manufacturing 73

33. Utilities 90

34. Railroads 93

35. Roads 103

36. Shipping 113

37. Commercial Aviation 129

38. Commerce 132

39. Communications 134

40. Finance 138

Page
Appendix I - Density of Population in Bengal and Assam 143

Appendix II (a) Social Distribution in Bengal 144
(b) Social Distribution in Assam 145

Appendix III (a) Linguistic Distribution in Bengal 146
(b) Linguistic Distribution in Assam 147

Appendix IV (a) Distribution of Factory Workers (Table) 148
(b) Total Number of Industrial Workers (Map) 149
(c) Distribution of Factory Workers in:
Food, Drink, and Tobacco Industries 150
Chemical, Dyes, Skins, Hides Industries 151
Metal Industries 152
Engineering 153
Textile Industries 154

Appendix V (a) Map of Calcutta 155
(b) Strategic Map of Calcutta Area 156

Appendix VI - Railway Statistics
(a) Gradients and Curves 157
(b) Locomotives 158
(c) Freight Cars 159
(d) Freight Statistics 162
(e) Density of Traffic 166

Appendix VII - Drydocks 168

Appendix VIII - Calcutta: Ship Chandlers, Stevedores, and Contractors 169

Appendix IX - Calcutta: Exports and Imports, 1938-39 171

Appendix X - Communications
(a) Telephone Circuits 173
(b) Telegraph Circuits 174

Appendix XI - Road Map of Northeastern India 175

Section III

POPULATION AND SOCIAL CONDITIONS

15. General.

Northeastern India, composed chiefly of Bengal and Assam and omitting the Himalayan states of Bhutan and Sikkim, includes at once the most culturally advanced section of India and some of the most backward parts, the most highly industrialized area and the greatest agricultural establishments, some of the most mountainous territory and the widest extent of salt marshes. It contains the greatest part of India's navigable waterways, her second most important port, her largest city. Three of her four speech-families and both (or all three) of her physical types are represented in that area. It is one of the wealthiest sections of the country; it also reveals some of the most alarming manifestations of labor discontent. Intense and violent nationalist activity has taken place there. Though never the scene of an ethnic invasion, it has a frontier as vulnerable as the northwest, where heretofore all great invasions have entered. Taken as a whole, it is today the most important part of India; it is also the part immediately exposed to Japanese attack.

a. Prehistory: Pre-Aryan. Little that is not conjectural can be affirmed of the earliest inhabitants of this territory. Of the elements identifiable in the present population, the Munda-speaking people were probably the first to occupy the region. The racial affiliations of this group are uncertain. So, too, are the affiliations of the Munda languages. Efforts to associate the Munda languages with the Mon-Khmer languages and numerous languages of the Pacific into an "Austric" family are honored by the 1931 Census of India, but linguists now almost universally deny the alleged connections and refuse to admit the existenc of an Austric family. The Munda languages are considered to comprise a single family. Speakers of the Munda languages are found today in isolated groups in western Bengal, Bihar, Orissa, and the Central Provinces.

No speakers of Dravidian languages are found in Bengal today, but their presence there in pre-Dravidian times is inferred from the existence today of a small island of Dravidian speech (Malto) in Bihar just west of Bengal, combined with the fact that the grammatical structure of the Bengali language seems to owe something to Dravidian influence, while many place names in Bengal contain Dravidian elements. It is, however, impossible to isolate Dravidian elements in the racial and cultural composition of the present day population.

At what time these pre-Aryan speeches came into the region it is impossible to say, but it must have been before 1000 B.C., for by then the Aryans were well on their way to Bengal, if not actually there.

b. Aryan Settlement. The Aryan penetration of Bengal, as of the whole of India, is the most important fact in the history of the region, for the Aryan language triumphed over the languages that preceded it and gave the whole culture its structure and organization. Yet the Aryans who went into Bengal were, for some centuries at least, held in rather low esteem by those who remained behind in the west. A legend recorded in a sacred text from about 800 B.C. tells how an Aryan Brahman, leading the eastward advance, crossed the river Gandak in Bihar, a little west of the present Bengal boundary. But as he stepped into the water the god of fire, Agni, who was the Vedic deity of the sacrifice, fell out of the priest's mouth. The meaning of the legend is that the Brahmans east of the Gandak, "the Easterners," do not practise the true sacrifice and are not 100 percent Aryan. Their very pronunciation of the sacred language Sanskrit was held incorrect and colloquial, as it is today. Their whole orthodoxy, in fact, was considered questionable. The aryanization of Bengal was a long process, but it was completed by around 600 A.D. Even today, however, the Bengali Brahman is not considered the equal of Brahmans of certain other parts of the country. The point has importance, for it helps to explain the rest of India's attitude towards the Bengalis. They are admitted to be intelligent and shrewd, but socially they are disesteemed.

In Assam aryanization proceeded from Bengal, and was well completed in Kamarupa (Western Assam) by the middle of the seventh century A.D. There, however, the Aryans met speakers of Khasi, one of the Mon-Khmer languages, and of Tibeto-Burman languages. It may be assumed, chiefly by inference rather than on the basis of positive evidence, that the Khasi-speakers were the earliest residents there of whom linguistic descendants exist today. The Tibeto-Burmans, starting down from northeast Tibet or southern China no later than the first century A.D., moved into Assam as well as into Upper Burma. There, probably, they came into contact with the Khasis and possibly some Munda-speakers and drove a wedge into the group, pushing the Khasis to the west in Assam and some other Mon-Khmers (such as the Was and Palaungs) to the east in Burma. When the Aryans came in, they carried their culture up the Brahmaputra valley but not into the adjoining hills. Aryanization has, consequently, proceeded only part way into eastern Assam. The Tibeto-Burmans, being of the Mongoloid type, have a marked physical, as well as a cultural, distinction from the Aryans.

The Bengal-Assam region, therefore, though a geographical unit because of the great Ganges-Brahmaputra river complex, is culturally diverse. Bengal and western Assam constitute one section which is aryanized, and eastern Assam another, which is chiefly unaryanized. The Himalayan foothills also have a racial and cultural affinity with the non-Aryan part of Assam, for the languages there are Tibeto-Burman and the physical type is Mongoloid. In these regions Aryan and Tibeto-Burman cultures have overlapped, without either of them becoming dominant.

c. History: Hindu Period. The recorded history of the area, in its broadest lines, falls into three periods: (1) Hindu, (2) Muslim, (3) British.

In the Hindu period, of which records begin in the 3rd century B.C., there was a great cultural growth and development of commerce. Hinduism and Buddhism vied for the land and royal patronage, and Jainism, India's other great religion, had many establishments. The arts flourished; cities arose. The rich land supported a large population whose crafts provided goods for export, and the region was prosperous. The ancient and famous port of Tamralipti, now Tamluk, on the Rupnarayan River was the chief sea outlet for eastern and northern India. From there, undoubtedly, went many of the traders who carried Indian literature, art, religion, as well as manufactures, to the East Indies, especially from the 4th to the 9th century A.D.

Yet it was not until the 8th century (750 A.D.) that the scattered principalities of Bengal and eastern Bihar, often living in a relationship with one another hardly better than anarchy, were united into a kingdom. This was ruled by the celebrated Pala dynasty, which lasted until 1197, though part of Bengal came under the rule of the Sena dynasty in the 11th century. Hindu rule was broken in 1197 when the Muslim conquest of Bihar ended the power of the Palas and opened the way for the Muslim advance into Bengal and the easy conquest of the last Sena king in 1199. This king retired to Dacca, in eastern Bengal, where his successors continued for a few generations with impaired power.

d. Muslim Period. The Muslim hold on Bengal, so easily acquired, remained unbroken until the arrival of the British. From 1200 to 1340, the province paid a loose kind of allegiance to the Delhi kingdom, being governed by a Muslim ruler. He exacted tribute from the local principalities, some of which were also ruled by Muslims, some by Hindus. Both Bihar and Bengal had a large Buddhist community in pre-Muslim times. It was dissolved by Muslim persecution, and Buddhism ceased to exist south of the Himalayas. The Muslims set up their mosques throughout the provinces, made converts, often by force, destroyed Hindu temples and libraries. In 1340 Bengal became an independent Muslim kingdom and remained so until Akbar, greatest of all the Mughul emperors, conquered it in 1576. It was held by all the great Mughuls and after the death of Aurangzib in 1707, last of the powerful rulers, when the Mughul Empire was breaking up, it continued for 33 years to pay allegiance to the titular emperor. But in 1740, the Nawab Allahvardi (Alivardi) Khan made himself independent, and his grandson Siraj-ud-daulah, notorious in British annals of Bengal, was ruler at the time of the Black Hole of Calcutta in 1756. It was he who was defeated by Clive at Plassey in 1757 when the East India Company won Bengal and made solid its position.

During this period the Muslims made two attempts at conquest in Assam (1205 and 1661-63), but in each case were met with conspicuous failure. Assam remained independent or semi-independent, or was held by the kings of Burma.

The Muslim conquest and occupation give the historical basis for the present religious population mixture: in Bengal in 1931 the Muslims constituted more than 54 percent of the total population and the Hindus 43.5 percent. In Assam Hindus led with 56.3 percent, the Muslims had 30 percent, and "tribal" religions had 10.7 percent.

e. British Period. The British period properly opens with Clive's victory at Plassey in 1757, but it was preceded by the intrusions of the East India Company. These began in Bengal in 1690 when Job Charnock was allowed by the Nawab to build and fortify a small trading post on a mud flat, which later became Fort William, nucleus of the great city of Calcutta. The British came to Bengal, as to other parts of India, for trade, but the disordered state of local politics and the consequent threat to their commercial interests and personal safety drew them increasingly into the quarrels of the region. They had become strong in South India before 1757, where they had met both Indians and French, and following the Black Hole of Calcutta in 1756, an expedition was sent from Madras to Bengal under Clive. After various preliminaries, Clive, with allies, met Siraj-ud-daula at Plassey and won a decisive victory.

Though the East India Company, legally speaking, held the land around Calcutta as a feudal tenant of the Mughul emperor, it had almost absolute power and quickly enlarged its holdings by various means. The agents of the East India Company at first practised unlicensed spoliation of the land which they controlled. In 1772 Warren Hastings was appointed governor of Bengal, and in 1773 Parliament passed a Regulating Act, by which the Bengal presidency was made supreme over the other presidencies of Madras, Bombay, and Bencoolin in Sumatra, which last was surrendered to the Dutch in 1824. In 1774 the governor became "Governor General of the Presidency of Fort William in Bengal."

Under Hastings, who was Governor General until 1785, the British Empire was made firm. Oppression and official pillage continued. Under Cornwallis' regime, however, which lasted from 1786-1793, many administrative reforms were effected, and from then on the political history of Bengal was one of expansion of territorial holdings with continued curtailment of the Company's rights. In 1833 the Governor General of Bengal became Governor General of India. At last in 1858, when the Sepoy Mutiny had been crushed, the Company was dissolved, British rule was directly established, and Victoria was proclaimed Queen Empress. The capital city was Calcutta and the Governor of Bengal was Governor General and Viceroy of British India. Britain ruled India directly, without the fiction of an intermediate agency owing allegiance simultaneously to the Mughul emperor and to the English crown.

Assam was conceded to the British by the Burmese at the end of the First Burmese War in 1826 and, like many other acquisitions, was at first included administratively in the Bengal Presidency. Local Indian states there were successively absorbed into British India on various grounds, and only a few, such as Manipur, now retain any measure of independence. In 1874, Assam was made a separate province under a Chief Commissioner.

Bengal and Assam were jointly concerned in a political cause celebre in 1905. At that time, for purposes of administrative convenience, the unwieldy province of Bengal, containing 78,000,000 people, was divided into two parts, and eastern Bengal, containing the divisions of Dacca, Chittagong, and Rajshahi, was joined with the Chief Commissionership of Assam in a new province called "Eastern Bengal and Assam." The Bengalis were enraged at this division of their beloved native land. After a great deal of agitation they succeeded in getting the partition annulled in 1911, and Assam again became a separate province. At this same time the province of Bihar and Orissa was created out of the western districts of the old province of Bengal. Under the present constitution Assam stands on a parity with the other provinces of India and is administered by its own governor.

Notable economic changes, in Bengal particularly, have taken place during the British occupation. When the British first became political rulers after the battle of Plassey, the company officers exploited their power to amass personal fortunes in ways which scandalized the British public. Huge sums of money were collected, often by force and with brutal disregard of the rights of Indians. After the reforms instituted under Cornwallis there was marked improvement, but the memory of the early days has never died.

Local handicraft industry also declined during the British occupation. When the Company first got its holdings in Bengal, its ships came out in ballast and returned with finished products paid for in gold or with the profits of coast-wise trade throughout the East Indies. But when industry developed in Britain, especially the textile industry, India came to be used as a source of raw materials and a market for finished products. The character of shipments from India altered, and there was an accompanying alteration in the character of the local industries. For example, the fine textiles of Dacca, in eastern Bengal, and of other cities ceased to be manufactured. Many Indians claim that the manufacture was forcibly suppressed, but in any case, the competition of cheaper machine-made goods would probably have forced them out. In recent decades certain machine industries have been developed in the Calcutta area, which is on the whole the most important industrial region of India.

A permanent land settlement was also introduced by Lord Cornwallis, fixing the rate of land rental at a permanent figure. This was a well-meant reform, but it turned out to be disadvantageous. The land was turned over to landlords at an unalterable rental, which as time passed came to represent much less than its true rental value. Consequently super-rentals were imposed and super-rentals on these, until a pyramid of lessors came into existence. In some cases the Bengal peasants have been supporting a hierarchy of income-receivers ten or twelve layers deep.

Bengal has also been the scene of bitter anti-British political agitation, which has been acute since the Partition in 1905 and has often been accompanied by violence. The region is now full of discontent and well-suited to Japanese fifth-column activity.

16. Population.

The complete returns of the 1941 Census of India have not been published, but some preliminary statements have been issued. The total population of India is about 388,800,000, as against 338,119,000 in 1931, showing a gain of 15 percent. The following figures, taken from a summary general announcement of the 1941 census, pertain specifically to Bengal and Assam:

	Area	Population 1941	Population 1931	Percent Change	Density Sq. Mi. 1931
Bengal	77,521	60,314,000	50,116,000	+ 20.3	778
Bengal States	5,434	2,142,000	1,863,000	+ 14.9	394
Assam	50,014	10,205,000	8,623,000	+ 18.2	185.5
Assam States	12,320	725,000	626,000	+ 15.9	59
Total	150,289	73,386,000	61,228,000	+ 18.2	488

Density figures are not available from the 1941 census.

The greatest density in Bengal in 1931 was in the Howrah district, and the lowest in the Chittagong Hill Tracts, along the Burmese border. In Assam, the greatest density is in the Sylhet district, the lowest in the Lushai Hills. The density of the region in 1931 is indicated in the diagrams attached.

The area has a number of cities, including Calcutta, the largest in India. According to a government of India press release, the population of Calcutta in 1941 was 2,100,000, showing an increase of more than 75 percent over the figure for 1931.

In 1931, the male population between the ages of 20 and 40 was as follows: Bengal, 8,800,000; Assam, 1,172,000. The total for both was about 9,972,000. Allowing a 20 percent increase for Bengal and a 17 percent increase for Assam, the total estimated figure for 1941 is 10,740,000.

See Appendix I for the density of population in Bengal and Assam as of 1931.

Bengal Urban Population in 1931
(from Census of India, 1931)

Name of Town with District or State	Population
Total Urban Population--143 towns	3,711,940
Class I.--100,000 and over--3 towns	1,560,125
Calcutta--Calcutta	1,196,734
(Fort William--Calcutta)	3,083
Howrah--Howrah	224,873
Dacca--Dacca	138,518
Class II.--50,000--100,000--3 towns	196,265
Bhatpara--24-Parganas	84,975
(*Kharagpur--Midnapore)	58,134
Kharagpur Railway Settlement--Midnapore	37,871
Chittagong--Chittagong	53,156
Class III.--20,000--50,000--32 towns	950,457
Tittagarh--24-Parganas	49,584
Burdwan--Burdwan	39,618
South Suburban--24-Paganas	39,499
Serampore--Hooghly	39,056
Baranagar--24-Parganas	37,050
Barisal--Bakarganj	35,716
Narayanganj--Dacca	34,189
Hooghly-Chinsura--Hooghly	32,634
Sirajganj--Pabna	32,467
Midnapore--Midnapore	32,021
Bankura--Bankura	31,703
Comilla--Tippera	31,365
Asansol--Burdwan	31,286
Naihati--24-Parganas	30,908
Mymensingh--Mymensingh	30,480
Bally--Howrah	30,347
Kamarhati--24-Parganas	30,334
Berhampore--Murshidabad	27,403
Rajshahi--Rajshahi	27,064
Madaripur--Faridpur	26,894
Rishra--Konnagar--Hooghly	26,868
Brahmanbaria--Tippera	26,662
Champdani--Hooghly	25,365
Santipur--Nadia	24,992
Tollygunge--24-Parganas	24,476
Krishnagar--Nadia	24,284
Budge-Budge--24-Parganas	24,183
Jamalpur--Mymensingh	23,077

*Not a municipality or cantonment.

Name of Town with District or State (cont.)	Population (cont.)
Bhadreswar--Hooghly	22,992
Pabna--Pabna	21,904
Basirhat--24-Parganas	21,287
Rangpur--Rangpur	20,749
Class IV.--10,000--20,000--44 towns	640,647
Darjeeling--Darjeeling	19,903
Bishnupur--Bankura	19,696
Sherpur--Mymensingh	19,547
Dinajpur--Dinajpur	19,156
Khulna--Khulna	19,120
Jalpaiguri--Jalpaiguri	18,962
Nabadwip--Nadia	18,861
Baidyabati--Hooghly	18,486
South Dum-Dum--24-Parganas	18,471
English Bazar--Malda	16,907
Chandpur--Tippera	16,838
Halisahar--24-Parganas	16,770
*Saidpur--Rangpur	16,519
Raniganj--Burdwan	16,373
North Barrackpore--24-Parganas	16,258
Tangail--Mymensingh	16,082
Nawabganj--Malda	15,826
Faridpur--Faridpur	15,516
Kishoreganj--Mymensingh	15,437
Kanchrapara--24-Parganas	15,005
Bogra--Bogra	14,819
Barrackpore--24-Parganas	14,413
Bansberia--Hooghly	14,221
Garulia--24-Parganas	14,033
Baduria--24-Parganas	13,677
Noakhali--Noakhali	13,063
Jangipur--Murshidabad	12,796
Kandi--Murshidabad	12,616
Ghatal--Midnapore	12,400
Cooch-Bihar--Cooch-Bihar	11,837
Panihati--24-Parganas	11,699
Bajitpur--Mymensingh	11,650
*Kulti--Burdwan	11,574
Rajpur--24-Parganas	11,433
Ranaghat--Nadia	11,395
Jessore--Jessore	11,356
Satkhira--Khulna	11,241
Jiaganj-Azimganj--Murshidabad	10,998
Sonamukhi--Bankura	10,989
+Barrackpore--24-Parganas	10,982

*Not a municipality or cantonment.

+Cantonment.

Name of Town with District or State (cont.)	Population (cont.)
Netrakona--Mymensingh	10,980
Pirojpur--Bakarganj	10,959
Suri--Birbhum	10,908
*Feni--Noakhali	10,875
Class V.--5,000--10,000--38 towns	283,770
Rampurhat--Birbhum	9,969
Dhulian--Murshidabad	9,767
Jaynagar--24-Parganas	9,755
Agartala--Tripura	9,580
Kalna--Burdwan	9,567
Murshidabad--Murshidabad	9,483
Kushtia--Nadia	9,405
Uttarpara--Hooghly	9,350
Tamluk--Midnapore	9,095
*Kalimpong--Darjeeling	8,776
*Beldanga--Murshidabad	8,745
Barasat--24-Parganas	8,672
Gaibandha--Rangpur	8,479
*Kurigaon--Rangpur	8,452
Nator--Rajshahi	8,318
Taki--24-Parganas	8,234
Katwa--Burdwan	7,772
Arambagh--Hooghly	7,461
Kurseong--Darjeeling	7,451
Kotrung--Hooghly	7,160
Rajbari--Faridpur	7,104
Jhalakati--Bakarganj	6,496
Baruipur--24-Parganas	6,483
Patuakhali--Bakarganj	6,434
Gauripur--Mymensingh	6,319
Ramjibanpur--Midnapore	6,230
Meherpur--Nadia	6,205
Muktagacha--Mymensingh	6,131
Kotchandpur--Jessore	6,115
*Siliguri--Darjeeling	6,067
Khardah--24-Parganas	6,018
Chandrakona--Midnapore	6,016
*Burnpur--Burdwan	5,740
Kharar--Midnapore	5,736
Bhola--Bakarganj	5,558
Dum-Dum--24-Parganas	5,350
*Contai--Midnapore	5,259
Cox's Bazar--Chittagong	5,018

*Not a municipality or cantonment.

Name of Town with District or State (cont.)	Population (cont.)
Class VI.--Under 5,000--23 towns	74,676
Debhatta--Khulna	4,954
*Patrasair--Bankura	4,854
Dainhat--Burdwan	4,845
*Lalmonirhat--Rangpur	4,691
North Dum-Dum--24-Parganas	4,535
Gobardanga--24-Parganas	4,525
*Nilphamari--Rangpur	4,405
Sherpur--Bogra	4,279
Chakdah--Nadia	3,986
Khirpai--Midnapore	3,693
Kumarkhali--Nadia	3,362
Mahespur--Jessore	3,321
*Ondal--Burdwan	3,110
*Naugaon--Rajshahi	3,104
Old Malda--Malda	2,779
Dinhata--Cooch-Bihar	2,516
*Domar--Rangpur	2,471
Mathabhang -Cooch-Bihar	2,431
Birnagar--Nadia	2,341
Nalchiti--Bakarganj	1,946
Haldibari--Cooch-Bihar	1,246
+Jalapahar--Darjeeling	718
Lebong--Darjeeling	564

*Not a municipality or cantonment.

+Cantonment.

Population of Towns in Assam, 1941

(From Census of India, 1941)

District	Town	Population
Cachar	Silchar	16,601
	Hailakandi	3,084
	Haflong	1,471
Sylhet	Sylhet	28,128
	Habiganj	11,856
	Sunamganj	7,484
	Karimganj	7,813
	Maulribazar	5,855
	Srimangal	2,523
Khasi and Jaintia Hills	Shillong (British portion only)	5,744
	Shillong (cantonment)	7,458
Naga Hills	Kohima	3,507
Goalpara	Dhubri	12,699
	Gauripur	5,783
	Goalpara	7,793
Kamrup	Gauhati	29,598
	Palasbari	3,692
	Nalbari	3,578
	Barpeta	18,466
Darrang	Tezpur	11,879
	Mangaldai	2,093
Nowgong	Nowgong	12,972
	Lumding	3,864
Sibsagar	Jorhat	11,664
	Sibsagar	7,559
	Nazira	3,436
	Golaghat	5,470
Lakhimpur	Dibrugarh	23,191
	Doom Dooma	2,177
	Tinsukia	8,338
	N. Lakhimpur	2,790
Manipur	Imphal	99,716
Khasi States	Shillong	24,990

17. Ethnic and Social Groups.

The ethnic distinctions of Bengal and Assam have been hinted at in paragraph 15. Difference in physical type is of very little importance in Bengal and Assam in creating social fissures; the most important factors in this respect are cultural differences of language and religion.

In both provinces, the Indo-Aryans, whatever their internal differences, regard themselves as set apart from the non-Indo-Aryans. The latter groups are individually small, primitive or backward culturally, and are generally low in the economic scale. In Bengal, the largest is the Santal group, living in Western Bengal and continuing into Bihar. Their language is Santali, a dialect of Kherwari belonging to the Munda family. In Assam, the Khasis living in the Khasi and Jaintia Hills are another such group; their language belongs to the Mon-Khmer family. In 1931, the Kherwaris (Santals and a few others) numbered 880,000; the Khasis numbered 234,000. Widely separated geographically, these two groups are completely unconscious of each other. The Santals constitute a kind of open field for cultural anthropologists. They live in a remote territory and practise agriculture and herding. Their economy is extremely primitive, their social structure complex and elaborately organized. At present they are being subjected to Hindu culture, which they are partly assimilating. The Khasis, a mountain group in central Assam, are socially very primitive.

Other non-Aryans are Tibeto-Burmans, who live in mountainous regions along the Himalayan base in Assam and in easternmost Bengal along the Burmese border. Tibeto-Burmans in this area belong to three main groups: Bara (or Bodo), Kuki-Chin, and Naga. Of these, the best known are the Garos (of the Bara group), the Nagas, the Lushais, and the Kukis, who are warlike and ferocious. The Kukis were pacified with considerable difficulty, and continued to cause trouble for the British until as recently as 1917-19 when a force of 5,400 troops managed to subdue them in the Manipur State area. They too are of high interest to anthropologists and unlike the Santals are not being subjected to acculturation from Hindu sources.

Although the primitive peoples in Bengal and Assam are few in number, they are of considerable importance since they occupy territory of strategic value for the defense of eastern India. It is possible, in view of the small numbers of troops on both sides engaged in the Burma campaign in February and early March 1942 and the lack of good roads in the Bengal and Assam frontiers, that no large forces could be or would be, employed there. In that case, the inhabitants might well have an influence on any campaign in the frontier region.

The most significant social fissure in the region is that between Hindu and Muslim. This is fundamentally a religious difference, but in the upper economic levels it has also assumed the character of political and economic rivalry. The subject of Hindu-Muslim friction has been discussed at some length in the Survey of India, paragraph 17, and the material given there is not repeated here. Underlying the current disagreement is the memory of violent hostility during the centuries of Muslim domination and Hindu depression. In Bengal, the number of Muslims in 1931 was 27,800,000 and the number of Hindus was 22,200,000, with the Muslims outnumbering the Hindus in East Bengal (Dacca and Chittagong divisions and Tripura state) by 2½ to 1. In Assam, however, the Hindus outnumber the Muslims by not quite 2 to 1 (5,200,000 to 2,800,000). The two communities live intermingled in the same areas, and there are frequent explosions, often with some very small occurrence as the detonator. Many lives have been lost in these riots.

Within Hinduism there are social cleavages according to the system of caste. This stratifies the Hindu population throughout India into 2,000 or more mutually exclusive groups having greater or less degrees of separation from one another, but possessing boundary lines sharp enough to prevent a person from passing from one caste to another, or from marrying outside a limited group. It grants marked privileges to the Brahmans, who are at the top of the scale, and imposes painful disabilities upon the Untouchables, who are at the bottom.

According to Hindu theory, the castes fall into four groups. These groups are in reality the four social classes of the Rigvedic peoples and the classification comes from a time when the caste system had not been evolved. The effort to fit the present caste system into this ancient social classification is unsuccessful but is a point upon which Hindu orthodoxy is firm. Though the identification of the two systems is fallacious, it is convenient not to discard it entirely. The four Rigvedic classes are associated with the modern castes as follows: the castes included in the three upper groups are known as the twice-born castes, because the boys are initiated into the group by a so-called second birth; the fourth group is made up of the servant castes. In Bengal the upper groups are called bhadra lok ("people of good stock"). After the Rigvedic period there also came to be recognized at the bottom of the scale another general group called the Panchamas, "Fifths". The castes associated with this group today constitute the outcaste groups, although they, too, have their own caste distinctions. The five groups and the most prominent castes of Bengal and Assam which are associated with them are as follows:

Ancient class distinction	Modern Bengali and Assamese distinction
Twice born:	
1. Brahman (priest)	Brahman
2. Kshattriya (warrior)	Kayasth (clerk)
3. Vaishya (artisan and farmer)	- - - - - - - -
Once born:	
4. Shudra (serf)	(Namasudra (fisherman and cultivators) (Mahisya or Kaibarta (cultivators and fishermen) (Rajbansi (small cultivators)

Ancient class distinction (cont'd)	Modern Bengali and Assamese distinction (cont'd)
5. Panchama (outcastes, "Depressed Castes," "Scheduled Castes," "Exterior Castes," Pariahs.	Large number of these castes

Although castes divide the Hindus into separate endogamous groups, it is nevertheless true that all Hindus consider themselves a unit. This is explained by the prevalence of the doctrine of Works (Karma) and Rebirth. What a man does in one existence affects directly his next existence, determining the **kind of creature** he becomes and the circumstances of his life. A man, therefore, is today only what he has made himself by his previous deeds. Similarly, he is now determining the character of his next existence. The low caste man thinks that he deserves his lowly condition and he is equally convinced that the high caste man has earned his good fortune. He tends, therefore, to accept his fate without resentment and with no attempt to alter it. In recent years, however, the Depressed Classes, lowest of all, have come to assert themselves as a group seeking improvement of their wretched state. They are now, therefore, less closely associated with the rest of the Hindu Community than ever before in history.

The Muslims are a fairly homogeneous group. The sectarian differences between Sunnis and Shiahs are unimportant in both Bengal and Assam, where the Sunnis amount to about 99 percent of the total Muslim community.

For distribution of social groups in Bengal and Assam, see the maps in Appendix II.

There are no important alien groups in Bengal and Assam, except the British, who numbered 24,000 in 1931. Loosely associated with the British are the Anglo-Indians (Eurasians and half-castes), totaling 28,000 in 1931, though this last group now tends somewhat towards assimilation with the Indians. Historically they are mostly sprung from British soldiers and low caste Hindu or Muslim women. The

British of pure stock reject them socially, and their economic position is below the level of the British.

The British regard England as their "home," and India as only a temporary stopping point. The relationship between them and the Indians is one of strangers, with the British generally feeling superior to the Indians, and the Indians resentful of this air of superiority. In the present crisis, the British are obviously friends of America and offer us no problem in sending troops to India. If, at any time, American and British friendship should be impaired, it would be important to consider the relationship of the Indians to them and to ourselves.

18. Language.

The distribution of languages is given in a table at the end of this section, which is simplified from the tables given in the Census of India, 1931. The table given here rejects the name "Austric," which the census uses to include Khasi, Munda, and many other languages east of India. The so-called "Austric" family is generally regarded by linguists as fictitious and the term as being without justification.

The tables and maps make clear the following facts: (1) In Bengal the Bengali language is almost universal. The following exceptions should be noted:

a. Chittagong Hill Tracts: Kuki-Chin languages.
b. Jalpaiguri and Darjeeling districts: Hindustani and South Indian languages among immigrants; and various native Tibetan dialects among indigenes.
c. Western fringe of Bengal: Kherwari.

(2) In Assam, the prevailing languages are Assamese and Bengali. The following exceptions should be noted:

a. Khasi and Jaintia hills: Khasi
b. Garo Hills: Garo
c. Assam Valley: Bodo
d. Naga Hills, Manipur: Naga dialects, Manipuri, Kuki-Chin

(3) Throughout the tea-garden districts of both Bengal and Assam the immigrant labor uses many languages of the other parts of India (Hindi, Oriya, Kherwari, and others), but these probably have relatively little military significance.

The public education system lays great emphasis on the study of English, especially in high schools and colleges where it is the medium of instruction for all other subjects. It is used by all government officials except police constables and by most business firms of any size. It is consequently widespread in Bengal, spoken by 42.8 persons per thousand. In Assam the use of English is much less extensive. The 1931 census remarks: "Literacy in English is practically confined to males....Among males the proportion of literates in English aged 5 and over...(is)...22 per thousand." It is probable that in both Bengal and Assam English is spoken today by a higher percentage of the population than in 1931.

Wherever troops go they should have interpreters, procured in advance, and should not trust to local speakers of English, who may be scarce and incapable of giving satisfactory service for military purposes. This is especially true along the frontier. There the educational level is lower than in other parts of the two provinces, and the number of English speakers is low. Even the use of Bengali and Assamese is less extensive. For the most successful operations along the frontier, forces should be provided with interpreters who use the local languages. The following table should be consulted with reference to those localities. Linguistic maps of Bengal and Assam will be found in Appendix III.

Principal Languages of Bengal and Assam

(simplified from 1931 Census of India)

	BENGAL		ASSAM	
Languages	Number of speakers (000 omitted)	Where chiefly spoken	Number of speakers (000 omitted)	Where chiefly spoken
Khasi			234	Khasi and Jaintia Hills
Munda			321	All tea gardens (by immigrants)
Kherwari	880	North and West Bengal		
Kharia	15	Jalpaiguri		
Tibeto-Burman Family				
Bhotia	14	Jalpaiguri; Darjeeling		
Pronominalized Himalayan	57			
Non-pronominalized Himalayan	73			
North Assam Branch (Abor, Mirs, etc.)			99	Sadiya; Sibsagar; Lakhimpur
Assam-Burmese Branch				
Bara (or Bodo) group				
Garo	38	Mymensingh; Tripura State; Jalpaiguri; Cooch Behar		
Tripura Mrung	192	Tripura State; Chittagong Hill Tracts		
Bara (or Bodo)			283	Assam Valley
Rabha			27	Goalpara; Garo Hills
Dimasa			15	North Cachar Hills
Mikir			126	Mikir Hills
Naga Languages			265	Naga Hills; Manipur

Principal Languages of Bengal and Assam (cont.)

Languages	BENGAL Number of speakers (000 omitted)	BENGAL Where chiefly spoken	ASSAM Number of speakers (000 omitted)	ASSAM Where chiefly spoken
Assam-Burmese Branch (cont)				
Kuki-Chin Languages	43	Tripura State; Chittagong Hill Tracts	591	Manipur; Cachar; Sylhet; Lushai Hills
Dravidian Family				
Kurukh (or Oraon)	186	North, West, and Central Bengal	53	Tea districts
Telugu	33	Throughout	31	Tea districts
Indo-Aryan sub-family				
Bengali	47,139	Whole province	3,966	Sylhet, Cachar, Lower and Central Assam
Assamese	3	Whole province	1,995	Assam Valley
Oriya	160	Whole province	203	Tea districts
Bihari	1,135	Whole province		
Eastern Hindi	662	Whole province	590	Tea districts
Western Hindi (Hindustani)	95	Whole province		

19. Characteristics of the People.

The people of Bengal and Assam are on the whole ill-fed, ill-clothed, and ill-housed and as a result are relatively low in stamina. They have not cultivated the art of war, and have no reputation for it in history. Instead, most of them have been peaceful tillers of the soil, with little chance to develop any ambition beyond the mere maintenance of existence. If there is a distinction in this respect between Hindu and Muslim, the Muslim peasant is the less passive, inheriting in some slight degree the martial tradition of the Muslim conquerors.

Just as their stamina is affected by living conditions, so too, superficially, is their intelligence. Since a scientific study along modern psychological lines does not exist for these people, we must rely upon the testimony of casual impression. The members of the lowest economic strata, who comprise the greater part of the population, often seem slow and uncomprehending. Yet this testimony, on any sort of reflection, is obviously insufficient. Babies in Bengal and Assam are born with intelligence equal to that of babies in other countries, while adult Bengalis of the middle classes have always been regarded by Europeans as too quick and intelligent to be easily deceived in business or law or to be outwitted in any political maneuvering.

In India generally, and in Bengal and Assam specifically, long tradition and entrenched custom govern the lives of the Hindus. Most of their social do's and don'ts are sanctioned by religion and are fixed in the form of caste rules. These apply to every stage of life, from conception to death and afterwards. Rites and ceremonies are prescribed for every major event and for the shades of the dead as well. Most important are matters of marriage and food. The caste, with few exceptions, is endogamous, and there are well-defined grades of castes, as mentioned in paragraph 17. Any violation of a social custom is vigorously resented as an offence against religion, and foreigners must always be careful in their dealings with Hindus to avoid touching their persons, their food, their drinking water, or the vessels for these. Nor should they step into a Hindu house unbidden, especially with shoes on. Even choice of occupation for Hindus is largely circumscribed by custom and tradition under the sanction of caste, for a large number of castes are "occupational" in origin and practice. This reverence for tradition is one of the most powerful influences acting upon Hindus, sometimes proving stronger even than hunger or thirst. Many a famine victim has preferred death to accepting food and drink that is ceremonially impure.

These generalizations about Hindus are subject to notable exceptions among the upper middle classes. Among them are small reform sects, such as the Brahmo Samaj, which tend toward general abolition of the caste system. They advocate a more liberal standard of social conduct, with loosening of many strictures regarding marriage, remarriage of widows, dining with non-caste-fellows, and rules for the preparation of food. Though such organizations are small, their policies attract considerable attention in intellectual circles and are paralleled by the actions and opinions of "advanced" thinkers throughout the country.

The Muslims have fewer traditional bonds than the Hindus chiefly because they do not honor the system of caste. However they cling to their inherited traditions with great conscientiousness, especially when these are sanctioned by religion. Violation of a Muslim religious taboo by an outsider may easily cause a riot. The Muslims are in general less well-educated than the Hindus, and though they have fewer social restrictions they are no more "advanced" as a community. The liberalized section of the Muslims is proportionately smaller than that of the Hindus.

Among both communities the rank and file have the usual highly developed Indian respect for constituted authority. The mere statement that some command or prohibition is "an order" is often enough to insure obedience, with few questions asked. In the intellectual groups, however, there has been since 1906 a diminution of this respect for vested authority, and political terrorism has frequently been used as a revolutionary weapon. Bengal has experienced more of this than any other province in India.

Politically, the Bengalis have no superiors in India. More active in nationalist agitation than the people of any other province, they are skilled in using legal methods to fight the administration. In 1908, for example, the boycott of foreign-made goods in favor of domestic products originated in Bengal. In 1922, the Swaraj Party was founded in Bengal by a Bengali named C. R. Das. Its purpose was to gain as many elective seats as possible in the hated Legislative Councils and then to disrupt the success of the Councils by opposing all government-sponsored legislation. The Muslim League, the second most powerful political party in India, came into existence in Bengal in 1905, when Lord Curzon was effecting the partition of Bengal (mentioned in paragraph 15). All political issues are vigorously debated in Bengal. At present the chief split in the ranks of Indian nationalism is between the Congress, led by Gandhi and Nehru, and the more radical Forward Bloc party in Bengal. This party is led by Subhash Chandra Bose, Bengal's favorite son, who split from the Congress in 1940 and is now an Axis supporter.

The foregoing remarks about Hindus and Muslims and their general political capacity have no application to the primitive hill tribes of Bengal and Assam, which are concentrated chiefly along the Burmese border. These tribes are untutored, and many of them, like the Lushai, Kuki, Garos, and Nagas, are fierce and warlike. They take little cognizance of political issues in India or in their provinces.

In general, the United States holds a preferred position in the estimation of Bengalis and Assamese. We are idealized as amazingly efficient in material progress and unselfishly devoted to political ideals of freedom, democracy, and peace. We are, however, often criticized for our immigration laws on the grounds that they are anti-Asiatic and for our treatment of the Negroes. The Indians tend to consider us spiritually immature, and we are all thought to be millionaires. On the whole, however, the Indian people are very well disposed towards Americans.

The hill tribes know almost nothing about us but have now had an opportunity to meet Americans.

Except for the British and ourselves, the component peoples of the United Nations are little known in Bengal and Assam.

20. Living Conditions.

The majority of the people in Bengal and Assam, as throughout India, live in great poverty. Mrs. Vera Anstey, one of the leading economists writing on India, makes the following remarks on this topic:

> "There is no objective criterion of 'poverty', but according to Western standards practically the whole of India's labouring classes can be classed as 'poor', in the sense that even in good times they earn little more than the bare necessities of life, and that if anything goes wrong they are liable immediately to sink below the subsistence level. A certain number of cultivators and skilled industrial workers earn enough to live a comfortable, if simple, life, but the great bulk of the labouring population undoubtedly leads a precarious, hand-to-mouth existence. In fact the extreme poverty of the peoples of India is undeniable and undenied."

Calculations of the average annual per capita income in India vary from $25 to $40. It has been estimated that the main foodstuffs available for human consumption in India during an average year amount to 1.2 lb. per head per day, which is about the same as that provided in jails, or by relief agencies during a famine.

About 90 percent of India's population lives in villages; about 85 percent is made up of cultivators and their dependents, small retailers, and unskilled laborers. The land is crowded, yet the population continues to increase. From 1921 to 1931 the rate of increase was 10 percent; from 1931 to 1941 it was 15 percent.

A consequence of rural poverty is that the peasantry is driven to seek industrial employment. But such laborers have been unsatisfactory because they were unskilled and expected to return to their villages in the seasons of heavy agricultural employment. In the industrial centers peasant laborers receive higher wages than in their villages but are forced to live in a state of wretchedness and squalor. With higher wages and better living conditions, Indian labor quickly becomes as efficient as labor in other countries.

Housing conditions are as bad as food conditions. In Bengal, most of the peasantry live in mud and wattle huts with thatched roofs, affording no adequate protection from the winter cold or the summer heat and the heavy rains of the monsoon. They contain almost no furniture and are without sanitary arrangements. The villages are full of dogs which function as scavengers. Cows, buffaloes, and goats, which are the villagers' stock, live on pasturage without benefit of grain and produce very little milk. Cow dung, which would be a natural fertilizer, is used by the people for fuel, and since there is no other fertilizer available the land suffers.

Disease is prevalent, with no adequate provision for prevention and therapy. In 1936-37 there was one hospital or dispensary to about every 56,000 of the population and one hospital bed to about every 16,300. In Assam there was one hospital or dispensary to every 50,000 and one hospital bed to every 8,800. The normal expectancy of life at birth is 26 years as against 55 in Great Britain and 60 in the United States.

Recent events have conspired to place the people of Bengal and Assam in steadily deteriorating economic straits. The loss of Burma cut off one of the prime sources of foodstuff; new areas placed in rice cultivation in Bengal have not entirely made good the loss. Political disturbances snarled the already overburdened transport system for a while; though traffic was restored in a few weeks, the railroads are not adequate to the demands now being made on them. A cyclone and tidal wave affecting a million and a half Bengalis has undoubtedly aggravated the food problem.

The cost of living index in Calcutta in September 1942 was 152 (base of 100 being taken as of September 1939). Calcutta prices were higher than those in Madras, which had a price index of 135 for the same month, and in Karachi with a price index of 145. Shortages were particularly severe in kerosene, sugar, and wheat.

In an effort to keep the price of foodstuffs under control, the government has opened some fifty food shops in Calcutta, but these have not been enough to stem the spiral of rising prices. The government of Bengal introduced price control of rice in June 1942. The price of coarse rice was fixed at Rs. 5/12 per maund wholesale, Rs. 6/4 retail. The price of medium rice was set at Rs. 6/4 per maund wholesale, Rs. 6/12 per maund retail. This was a move in the right direction but has not yielded satisfactory results. The position of the speculative trader in India is very strong, and an extremely vigorous policy will be required to improve matters to any great degree. The prospect at the time of writing, December 1942, is a still greater rise in the cost of living, with the consequent economic squeeze of the poorer classes of Indian society.

Both commodity shortages and rising prices have probably affected rural folk more seriously than city people. In cities factory workers and other employees are given "dearness allowances," wage increments designed to meet the rising cost of living. Food distribution is better in cities. Village people suffer from poorer transport and an unadjusted monetary income.

To add to the woes of the coastal tracts, a cyclone swept across the Bay of Bengal on October 16, 1942, flooding great areas of Midnapore, Diamond Harbor, and the Twenty-four Parganas. On November 12, 1942, the Revenue Minister of Bengal estimated that at the time at least 11,000 people were dead in Bengal and 1,500,000 homeless. Some 700,000 huts were destroyed and 75,000 head of plow and milch cattle lost.

The inhabitants of coastal areas have suffered further economic loss because the government has requisitioned many of their boats, on which they depended for their livelihood.

21. Labor.

Labor Conditions.

The bulk of India's heavy industry is located in Bengal, in the outlying districts of Calcutta, and in the immediately adjacent territory in eastern Bihar (see below in paragraphs 31 and 32). The precise wage-average for factory workers is not available, but rates start with unskilled labor at 7½ cents a day in outlying regions, 11½ cents in towns, and 15 cents in cities. A first class carpenter in a city gets Rs. 4 ($1.20) a day. These wages indicate the low standards of living among the workers.

Assam is the largest tea-producing province of India--438,925 acres are under its cultivation--with Bengal the second largest--203,100 acres. The two provinces contain 81 percent of India's total acreage for that commodity. In Bengal, 1,735 "tea factories" (plantations) in 1938 had a daily average of 562,791 employees. At the end of 1937, the Assam tea fields had a working population--men, women, and children--of 1,170,606. The average monthly earnings in the Assam valley for men, women, and children were Rs. 7/15/3 ($2.40), Rs. 6/7/5 ($1.95), and Rs. 4/9/2 ($1,38) respectively, and Rs. 6/5/6 ($1.91), Rs. 4/5/6 ($1,31), and Rs. 3/2/2 ($.94) in the Surma valley. These cash wages are in addition to free housing, free fuel, and free medical treatment--such as it is.

In the Calcutta industries and in the Bengal and Assam tea gardens much of the labor employed is migratory. Around Calcutta labor comes in largely from Bihar and Orissa, but since many of these laborers retain connection with their native villages and return to them periodically, the labor turnover is high. Assam shows the greatest labor fluidity of all Indian provinces. The 1931 census showed a gain by immigration for the decade of about 1,314,000 persons. This was largely due to the influx of immigrant labor on plantations, against which emigration was only about 73,000, making a net gain of almost a million and a quarter. Many evils have been connected with the recruitment of contract labor for the tea gardens, though the Tea Districts Emigrant Labour Act (1932) has corrected some of these. The foreign-born (i.e., from outside the province) population of Assam was about 15 percent of the total in 1931.

Throughout India there are labor laws regulating certain conditions. By the Indian Factories Act of 1934, the maximum hours in seasonal factories are 11 per day and 60 per week; in perennial factories they are 10 per day and 54 per week. Artificial cooling and heating of factories is prescribed; there are rules of rest and overtime, and regulations concerning the employment of women and children. Wages may not be withheld. There is also a Workmen's Compensation Act.

The Bengal Shops and Establishments Act (1940) prescribes a maximum of 54 hours per week and of 10 hours per day in shops, with overtime to be paid at time and a quarter. All employees in shops and commercial establishments must be given 1½ days' holiday per week, and are given 14 days' privilege leave per annum. Wages must be paid within 10 days after the end of the period for which they are due. There are no provisions against the employment of children.

The Calcutta Municipality and the Calcutta Port Trust have carried out a housing program for their own employees and others. The outstanding industrial housing project in India is that of the Tata Iron and Steel Company, called Tatanagar, laid out on Garden City lines. Eight thousand houses of different types have been built and further construction is planned. In 1939, 7,900 employees of the company were housed in these quarters. The capital cost of town buildings erected by the company up to March 1940, was Rs. 13,500,000: all quarters paying a rent of Rs. 15 or more per month have electric lights and fans; the lower priced quarters are also to be electrified. Some of the jute mills have built houses for their employees. In Assam all residential employees on tea estates are provided with rent-free quarters in barracks.

The Tata Iron and Steel Company also maintains eight restaurants within the plant where meals at cost price are served to workers. The Company provides ice and aerated water free from its own plant.

Since 1937 the government of Bengal has opened twenty welfare centers in industrial areas of Calcutta and Howrah. They employ 35 teachers and workers. These run day and night schools, day nurseries, reading rooms and lectures. It is expected that a wider variety of work will be carried on and that centers will be opened all over Bengal.

Trade Unions.

Trade unions in India are recognized under a registration act. The number of such unions has been steadily increasing. In 1938-39, 555 unions registered, and 394 of these reported a membership of 400,000. Bengal had 191 of these unions, far more than any other province, with an enrolled membership of 96,000. The preliminary figures for 1940 show a notable increase. The Bengal Trades Union Federation was formed in 1922. Three unions registered in Assam. On the whole, organization is not strong in the jute industry.

Labor constituencies have eight seats reserved for them in the Bengal Legislative Assembly. These eight constituencies are (1) railway trade unions, (2) water transport trade unions, (3) registered factories in Calcutta and suburbs, (4) registered factories in Barrackpore, (5) registered factories in Howrah, (6) registered factories in Hooghly and Serampore, (7) the collieries, (8) certain areas in the tea district.

The various officers in Bengal who look after labor affairs were as follows in 1942:

Minister-in-charge of Labor: Khan Bahadur Abdul Karim

Jt. Secretary, Commerce and Labor Department: M. K. Kirpalani, I.C.S.

Labor Commissioner and Registrar of Trade Unions: W. A. S. Lewis, I.C.S.

Assistant Labor Commissioner: Khan Saheb S. A. E. B. Murshedi

Commissioner for Workmen's Compensation Act and Authority under the Payment of Wages Act: S. N. Modak, I.C.S.

Labor Officers: A. Taleb, K. M. Azad, D. Chatterjee, G. Mobakak, and S. B. Datta

Chief Inspector of Factories: J. B. McBridge, A.M.I. (Mech.) E., O.B.E.

Certifying Surgeon: H. C. G. Pownes.

It is evident that labor problems have attracted considerable attention in Bengal, and a progressive labor policy may be expected to develop further local labor legislation.

In Assam there is no such body of officers dealing with labor, but the government takes an active interest in the question of recruitment of labor for the tea estates.

Recent Developments.

In the early months of the war the jute mills were flooded with orders for sandbags. They were granted exemption from the legal limit of 54 hours per week. By the middle of 1940 orders fell off, and since that time hours have generally been 45 per week or less.

Efforts at price control have been completely inadequate in India, and workers have demanded "dearness allowances" in addition to their regular rates of pay to meet the rising costs of living. These demands were made principally by the provincial trade union federations and individual trade unions upon the provincial governments, associations of employers, large industries, etc. Officials in industrial provinces tried to bring about an agreement between employers and workers, and were generally successful in Bengal. The Indian Jute Mills Association announced a pay increase of 10 percent, to be considered as restoration of a previous pay cut, not as a dearness allowance. The Oriental Gas Company gave Rs. 2 per month to workers earning under Rs.20, and Rs. 3 to those earning between Rs. 20 and 30. Other utilities gave Rs. 2 per month to workers earning under Rs. 30. The Calcutta Tramways Company and the Calcutta Electric Supply Corporation gave Rs. 4 to those earning over Rs. 50. The Calcutta shipping companies gave a 25 percent increase in wages to seamen in foreign agreements and later added a 75 percent war risk bonus to those sailing outside local waters. Bengal government employees receive one rupee a month dearness allowance when the price of the lowest grade of rice rises to 8 seers per rupee and remains at or above that level for 3 months. The Tata Iron and Steel Company, after negotiations through a board of conciliation, agreed to pay allowances of Rs. 2/8/0 for workers earning up to Rs. 50, with a scale of higher rates for more highly paid workers.

In Assam, the oil companies have granted allowances ranging from Rs. 1/8/0 to Rs. 4 per month. On the tea plantations either additional work or rice at concession prices was given instead of cash allowances. Government employees earning less than Rs. 30 per month receive an allowance of one anna in the rupee when the price of rice rises to eight seers to the rupee (pre-war price, 11 seers to the rupee), and two annas in the rupee when the price rises to six seers.

All of these settlements were reached without great difficulty. More recently, however, there have been several short strikes for pay supplements, e.g., that of the Calcutta tramway workers in May 1942 and at the Port of Calcutta in September.

A second source of labor unrest, which has resulted in greater work stoppages, is the fear of Japanese air attack and invasion. In the spring of 1942, it is authoritatively reported, some plants in and around Calcutta lost as many as 50 percent of their workers. In this connection it is interesting to note that the Tata Iron and Steel Company suffered almost no loss, which has been attributed to the arrangements made in advance for the security of the workers. Hostels and air-raid shelters have been provided and four weeks' supply of food stored near the plant. A system of bonuses was adopted, together with an insurance scheme for injury or death. In addition, an efficient A.R.P. organization was set up in the town of Jamshedpur.

The bombings of Calcutta by the Japanese in December 1942 brought about a large exodus from the city, particularly of dock and casual labor. The port was first and most seriously damaged, and later the jute mills. Within a week, however, the tide was reported turning back, even though the bombings were continuing on a small scale and intermittently. The latest report (December 30, 1942) indicates that the port is working at 60 percent of capacity and the jute mills at 80 percent capacity.

The third source of labor unrest has been the political situation. Following the arrest of Congress leaders in August 1942, strikes occurred in various parts of India, chiefly in Bombay and Bengal. Those in the Calcutta industrial area were small, except at Jamshedpur (Tata's). There were strikes in none of the jute mills, and in only four cotton mills. Coal and iron production was essentially undisturbed. There was no strike at the Burnpur plant of the Steel

Corporation of Bengal, nor at the railway workshops at Khargpur; and government munitions factories in Bengal were likewise free from unrest.

The principal strike was at the Tata Iron and Steel Company. On August 20 the company distributed an annual bonus of three months' pay, and on August 21 the foremen walked out, followed by all the workers. One electric power plant and essential fires were kept going. There was no violence, and there were no demands. The workers finally returned on September 8.

See Appendix IV for detailed data on industrial labor.

23. Education.

Education is administered in India by the provincial governments. The literacy figures for Bengal and Assam in 1936-37 appear in a table following this paragraph.

Literacy is returned according to the 1941 census as follows:

	Persons	Literates	Percent
Bengal	60,314,000	9,720,400	16.12
Bengal States	2,142,000	127,500	5.95
Assam	10,205,000	1,174,300	11.51
Assam States	725,000	57,400	7.92
	63,386,000	11,079,600	15.10

The average literacy rate is 15 percent, compared with less than 9 percent in 1931. The low rate of literacy is a commentary upon the education system, which is relatively undeveloped. The increase in the past decade, which is higher than in any preceding decade, is attributed by the Indian nationalists to the fact that they have controlled the legislative bodies and have increased the expenditures on education. It is still true that the whole educational program is relatively undeveloped, even in Bengal, which has India's oldest, largest, and best university.

The general subject of education in India has been discussed in the Survey of India, paragraph 23. The material there offered applies to northeastern India, and is not repeated here.

Here follow educational statistics for Bengal and Assam in 1936-37.

BENGAL

	Institutions			Scholars		
	Males	Females	Total	Males	Females	Total
UNIVERSITY EDUCATION						
Arts and Science Colleges	43	7	50	27,086	1,565	28,651
Professional Colleges						
Law Colleges	3		3	1,956	2	1,958
Medical Colleges	3		3	1,445	25	1,470
Educational Colleges	3	3	6	190	78	268
Agricultural Colleges						
Other Colleges	6		6	1,884	1	1,885
SCHOOL EDUCATION, GENERAL						
Secondary Schools	3,102	189	3,291	486,031	38,215	524,246
Primary Schools	44,113	17,404	61,517	1,786,427	674,080	2,460,507
SCHOOL EDUCATION, SPECIAL						
Normal and Training Schools for Masters and Mistresses	88	11	99	2,626	287	2,913
Other Special Schools						
Technical and Industrial Schools	124	29	153	5,057	1,939	6,996
All other Special Schools	2,366	22	2,388	112,239	2,979	115,218
Total of Recognized Institutions	49,851	17,665	67,516	2,424,941	719,171	3,144,112
Unrecognized Institutions	1,051	256	1,307	47,566	14,218	61,784
GRAND TOTAL	50,902	17,921	68,823	2,472,507	733,389	3,205,896

ASSAM

	Institutions			Scholars		
	Males	Females	Total	Males	Females	Total
UNIVERSITY EDUCATION						
Arts and Science Colleges	8	1	9	2,158	134	2,292
Professional Colleges						
Law Colleges	1		1	60		60
Medical Colleges						
Educational Colleges						
Agricultural Colleges						
Other Colleges						
SCHOOL EDUCATION, GENERAL						
Secondary Schools	550	70	620	81,209	13,111	94,320
Primary Schools	6,002	793	6,795	253,080	68,548	321,628
SCHOOL EDUCATION, SPECIAL						
Normal and Training Schools for Masters and Mistresses	6	2	8	332	33	365
Other Special Schools						
Technical and Industrial Schools	13	1	14	586	53	639
All other Special Schools	143	1	144	3,539	228	3,767
Total of Recognized Institutions	6,723	868	7,591	340,964	82,107	423,071
Unrecognized Institutions	782	87	869	27,903	8,904	36,807
GRAND TOTAL	7,505	955	8,460	368,867	91,011	459,878

24. Religion.

Religion in India has been discussed in the Survey of India, paragraph 24, and the material presented there is not repeated here.

Hinduism numbered in Bengal and Assam about 27,700,000 in 1931. In Bengal and Assam, more than elsewhere in India, there flourishes the kind of Hinduism known as Shaktiism. In this, the female principle is regarded as more important than the male, and the chief object of worship, therefore, is the female counterpart to a god. She is his kinetic energy (shakti); without her he is only will. The logical consequent is therefore worship of sex and of the human sex organs, with rationalization of this worship along metaphysical lines.

The other indigenous religions of Bengal and Assam are Buddhism, with a membership in 1931 of about 346,000, and Jainism, with about 12,000. Of the non-native religions, the greatest numerically is Muhammadanism (Islam), which in Bengal and Assam had a following of about 31,000,000 in 1931. Sikhism, in the same year had about 10,000 adherents in Bengal and Assam, while the Parsis numbered less than 2,000.

In 1931, the Indian Christian community in Bengal and Assam totalled about 432,000, of whom the Roman Catholics were the largest denomination. There were about 2,000 Jews, and the so-called "tribal" religions, very primitive in character, accounted for 1,522,000.

25. Public Order and Police.

Indians are in general a courteous and gentle people, with great natural respect for law and order. But in Bengal and Assam conspicuous lapses occur. There are three types of disorder which must constantly be kept in check.

One of these is local robbery by armed gangs, known as dacoity. The dacoits are the nearest spiritual kin today to the armed bands of robbers and murderers known as Thugs (thags), who formerly went throughout the country preying upon travellers, and killed their victims by strangulation with a cloth. They were exterminated during the first half of the 19th century (1829-37), and Thuggee (thagi), their profession, is now only a name. But attack by armed gangs upon private houses, railroad stations, or any other place where robbery looks profitable is frequent, and murder usually accompanies the attack.

The second type of disorder is political. Since 1906 Bengal has suffered from terrorism on the old Russian nihilist model, with assassination of government officials by bomb or revolver. Students in colleges have been the chief perpetrators of such affairs. Political discontent has also seized upon dacoity as a means of terrorizing opposing Indian sentiment and, at the same time, as a means of raising money. It is often difficult to tell whether an operation by dacoits is politically motivated or is purely for robbery.

The third type of disorder is that perpetrated by wild tribes in the more remote areas, chiefly along the Burma frontiers. Disaffection there may reach alarming proportions. In 1917-19, for example, revolts of the Kuki peoples in the Manipur State required a force of 5,400 troops to suppress them. In 1936-37 punitive measures had to be taken in the Naga hills, because the tribes had become a menace to their neighbors and were trafficking in slaves. The police control over such districts is obviously not sufficient for all occasions, and military forces are needed for quick service.

India's police system, like many of its other institutions, was first established in Bengal in 1793 under Lord Cornwallis. A thana (police station) was opened for every 400 square miles, with paid Indian officers in charge, to operate under the District Judges. To this day the police system still has functions and organizational features which date from its founding.

The Indian police is organized on a provincial basis, with the Home Member of the provincial government controlling all the police work. Below him is an Inspector General of Police and below him a Deputy Inspector General. Below the Deputy Inspector the division is by districts, each of which has a District Superintendent of Police in charge of a district force, with the power to enlist and dismiss the constabulary and to dismiss the police station (thana) officers. The District Superintendent of Police has his headquarters, parade ground, and lines (barracks) in the chief town of the district. From there he directs the stations and the outposts. The police are armed with single-loading muskets and bayonets.

Within the district, however, the police force is also subject to the District Magistrate to enforce law and maintain order.

At the local police stations complaints of crime are laid, and the cases are investigated. If the crime is "cognizable" (not merely a civil matter), a police prosecutor conducts the prosecution of the case in court free of charge to the complainant.

In each outpost are stationed a few policemen. The aim is to have one policeman to every square mile of territory or to every

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Class PV Radio Station
Canton Island
Maps

72

1,000 of the population. In addition to the police, there are watchmen (chaukidars) operating under the police.

The railways are policed by a special Railway Police.

In Calcutta the police is organized under a Commissioner of Police, who is not under the Inspector General of Police but deals directly with the Provincial Government.

In Assam there is also a special form of military police known as the Assam Rifles, with a strength of 3,485 in 1936. There is also a special River Police.

In addition to the constabulary force there is a detective service known as the Criminal Investigation Department (C.I.D.) to deal with specialized and professional crime. The C.I.D. works under a Deputy Inspector General, and its various provincial organizations throughout India return information to a Central Intelligence Bureau under the Home Department of the government of India.

Following the arrest of Congress leaders in August 1942, riots and violence occurred throughout India. While the disturbances in Bengal and Assam were not as severe as in Bihar, they caused serious problems, especially in the maintenance of communications. Railroad stations were burned, telegraph lines severed, government property of all kinds destroyed. Police, assisted by troops, fired on crowds, causing a number of casualties. The disorder has been held down in the months following, but it may break out again.

In 1938-39 the strength and equipment of the Bengal and Assam police force was as follows (from Statistical Abstract for British India...1938-39, published 1942):

	Total Strength		Armament of the Force		
Province	Actual Officers	Men	Number of rifles	Number of smooth-bores	Number of revolvers
Bengal	2,199	28,055	--	10,915	2,429
Assam	337	3,992	--	1,894	102

The principal police offenses--number of cases--in 1938-39, as reported by provincial authorities, were as follows:

	Bengal (excluding Calcutta Town and Suburbs	Calcutta Town and Suburbs	Assam
Offenses against the State and Public Tranquility			
Reported	1,890	125	919
Conviction obtained	604	81	263
Murder			
Reported	593	33	120
Conviction obtained	87	7	26
Other serious offenses against the person			
Reported	7,846	798	2,452
Conviction obtained	1,869	260	733
Dacoity (gang robbery with violence)			
Reported	695	3	34
Conviction obtained	136	--	3
Cattle theft			
Reported	1,123	86	270
Conviction obtained	439	27	89
Ordinary theft			
Reported	22,956	5,609	5,867
Conviction obtained	5,299	1,461	1,168

Figures are not available for the Bengal and Assam States.

26. Press, Propaganda, and Censorship.

Calcutta is by far the most important journalistic center in India. The most important English daily paper in India (The Statesman) is published there, the leading Indian daily published in English (Amrita Bazar Patrika), the leading Muslim daily in English (Star of India), two of the leading vernacular dailies of India (The Ananda Bazar Patrika; The Basumati), and one of the leading Muslim vernacular dailies (Azad). The leading economic journal (Capital) and commercial journal (Commercial Gazette), both weeklies, are also published there, as well as two of India's leading monthlies (Calcutta Review; Modern Review) published in English, and a number of others published in Calcutta, and a large number of trade journals. Minor periodicals are also published in Dacca, Shillong, Sibsagar, Howrah, Jalpaiguri, Kalimpong, Mymensingh, Nadia, and Tippera.

The Statesman, which, journalistically speaking, is on the whole India's leading newspaper, has had a fairly liberal character, criticizing the home government in London for its conduct of Indian affairs and not subscribing to a "die-hard" policy. It has been pro-Indian in its point of view, though not pro-nationalist, In August 1942, after the government of India arrested the Congress leaders, Arthur Moore, editor of the Statesman, was forced to resign under pressure of the owners by the government of India. The new editor was formerly Information Head for the government of India.

The other publications mentioned above are all pro-nationalist, but represent in varying degree the interests of the separate Hindu and Muslim communities. Among the latter, the Star of India is pro-Muslim League.

The press maintains a vigorous propaganda, and has been so effective that the government of India has adopted strong repressive measures. A seditious press in India was being born in Bengal even before the mutiny in 1857. As early as 1780-82 Hickey's Bengal Gazette, the first English newspaper in India, was making scurrilous attacks upon notables, including Mrs. Warren Hastings, wife of the Governor General, and the editor went to jail in consequence. In later years other English papers were outspoken, and various measures were instituted from time to time to curb them.

The press is regulated at present by an act passed in 1922, which puts upon editor, printer, and publisher alike responsibility for any criminal or civil offense, empowers local governments to confiscate seditious publications, and imposes imprisonment and fine for infringement of regulations. A special India Press (Emergency Powers) Act of 1931 set up a system of securities, deposits and fines to punish violations of government regulations of books, printing presses, newspapers, and news sheets. The government may confiscate papers, presses and securities in the case of incitement to violence or murder or in the case of expressed approval of murder. By the Defense of India Act of 1939, the Act of 1931 was declared in force, and the government was empowered to make rules to prohibit anything interfering with the training, discipline, and health of the troops; to prevent false reports likely to cause disaffection or alarm, to prejudice His Majesty's relations with foreign powers or promote feelings of enmity and hatred between different classes of His Majesty's subjects; to prevent publication of anything likely to give assistance to enemy or prejudice the successful conduct of war. There is a censorship in operation which concerns news and which may also restrict the exportation of certain books or periodicals from India.

Since the appearance of the country's first newspapers, the government of India has been fearful of the effect the press might have upon public opinion. In a land where literacy is so low, the few who read the newspapers can have great influence over the illiterate, since the latter cannot check the reports of those who read. The literate minority is, in its turn, not very critical, and the press is often able to obtain quick and alarming results.

Propaganda in India by both press and radio is effective in leading the masses to action and can be simpler than that which is used in a literate country like America. Motion pictures are also valuable. Both radio and cinema can be used in villages in the open air, where one loud speaker or one screen may reach the whole local population. In a bazaar a radio may be similarly useful. Propaganda material needs to be especially prepared for Indian audiences by persons acquainted with the Indian scene and the likes and prejudices of the Indian people.

Section IV

POLITICAL

27. General.

Northeastern India, one of the most highly developed sections of the country, is also one of the most politically conscious. This remark applies to Bengal but not to the border regions of Assam, where the people live in primitive economic and social conditions and are not aware of politics.

As is usual throughout India, two types of government exist side by side in this region. One is the partly representative system existing in the provinces of Bengal and Assam; the other is the autocratic system of the Indian (native) States.

Before the present war with Japan the northeastern border of India did not receive much attention as a military problem. Today it is a matter of primary concern. So, too, is the Bay of Bengal. The political situation of Burma has suddenly become of great military importance to India.

Americans hold a favored position in northeastern India, as elsewhere in the country. This condition should facilitate American propaganda and give it weight against that of the Japanese.

28. Government.

Bengal and Assam are governor's provinces of British India (as distinguished from commissioner's provinces), and their governmental organization is defined by the Government of India Act of 1935. The principal feature of Indian political organization is the division of subjects of administration between the central government and the provincial governments, and then between the provincial governors and the provincial legislatures. The central government consists of a Federal Court and an executive section, the latter composed of a Legislative Assembly (lower house) and a Council of State (upper house). Certain subjects of government are handled by the central government: defense, foreign relations, railways, customs, currency, posts, and telegraphs. The provinces handle law and order, land revenue, agriculture, education, public works, public health, communication, irrigation, forests, excise, mines, and a number of minor subjects. On some subjects, such as labor, both may have jurisdiction.

Each of the eleven governor's provinces is administered by a Governor, appointed by the Crown, and a legislative section composed in some provinces of one house, in others of two. Within the provinces, by application of the principle of "dyarchy," certain subjects considered to be of first importance are "reserved" for treatment by the Governor. These are law and order, land revenue, finances, and canals. Lesser subjects, such as agriculture, education, public health, and others, are "transferred" to the Legislative Councils. The Governor is advised by a Council of Ministers, appointed by the Governor at his discretion but responsible to the legislature. Under the Governor the province is administered by Civil Service officers: commissioners, deputy commissioners, and magistrates. Police, education, health, forestry, and excise services operate under them. The Governor has the right of veto, certification of legislation refused by the legislature but to his mind essential, and enactment of temporary ordinances.

The electorate is determined by qualifications of property, education, or position, and for the lower chambers of the provincial legislative assemblies includes about 10 percent of the population. For the upper chamber and for the central legislative bodies it is less than 10 percent, and the qualifications are higher. The electorate is divided, according to the principle of "communal representation," into a number of mutually exclusive constituencies. These are, first, a general constituency, in most provinces hardly to be distinguished from the Hindus, and then a number of communal constituencies representing religious or special interests. It is as though in America we were to vote separately as Protestants, Catholics, Jews, manufacturers, and others, for separate representatives. This system of communal representation is one of the chief sources of conflict between Hindus and Muslims and is the most troublesome feature of inner Indian political relationships.

Bengal and Assam both have two houses in the legislature. Each at present has a Muslim premier. The Governors and Councils of Ministers are as follows:

Bengal

Sir John Arthur Herbert, G.C.I.E.	Governor.
Abul Kasem Fazlul Huq	Chief Minister, with Portfolios of Home, Finance and Publicity.
Nawab Khwaja Habibullah, Bahadur of Dacca	Agriculture and Industries.
Santosh Kumar Basu	Public Health, local Self-Government and Civil Defence.
Khan Bahadur Abdul Karim	Commerce and Labour.

Bengal (cont.)

Pramath Nath Banerjee	Revenue, Judicial and Legislative.
Khan Bahadur Moulvi Hashem Ali Khan	Cooperative Credit and Rural Indebtedness.
Shamsuddin Ahmed	Communications and Works.
Upendra Nath Burman	Forests and Excise.

Assam

Sir Andrew Gourlay Clow, C.S.I., C.I.E.	Governor.
Sir Mohammed Sasdullah	Premier, Home and Supply.
Khan Bahadur Sayidur Rahman	Education and Public Works.
Khan Sahib Mudabir Hussain Chaudhury	Civil Defense and Legislative.
Abdul Matin Choudhuri	Finance.
Maulvi Munawar Ali	Revenue and Forests.
Hirendra Chandra Chakravarti	Local self-Government, Excise and Labour.
Miss Mavis Dunn	Public Health.
Dr. Ahendra Nath Saika	Industries and Cooperative Societies.
Naba Kumar Dutta	Agriculture and Veterinary.
Rup Nath Brahma	Judicial and Registration.

The apportionment of seats in the legislative bodies is as follows:

	BENGAL		ASSAM	
	Leg. Assembly	Leg. Council	Leg. Assembly	Leg. Council
General Seats	78	10	47	10
(Reserved for Scheduled Castes)	(30)		(7)	
Backward tribes			9	
Muslim	117	17	34	6
Anglo-Indian	3			
European	11	3	1	2
Indian Christian	2		1	
Commerce, Industry, Mining, and Planting	19		11	

	BENGAL		ASSAM	
	Leg. Assembly	Leg. Council	Leg. Assembly	Leg. Council
Landholders	5			
University	2			
Labor	8		4	
Women				
General	2			
Muslim	2			
Anglo-Indian	1			
Seats to be filled by Legislative Assembly		27		
Seats to be filled by Governor		Not less than 6 Not more than 8		Not less than 3 Not more than 4
Totals	250	63-65	108	21 or 22

Bengal and Assam contain several minor Indian states in which representative political institutions do not exist. Their government in local matters is left to the ruling prince, who is under the supervision of a British resident but who nevertheless has considerable latitude. All external relations are in the hands of the paramount power, which is the government of India. The chief states in Bengal are Cooch Behar and Tripura, whose areas are 1,318 and 4,116 square miles respectively; in Assam, the chief states are the Manipur State, which has an area of 8,620 square miles, and the Khasi States, with an area of 3,700 square miles.

Since India is chiefly an agricultural country, with about 90 percent of its total population living in villages, the administration is based upon an organization of the rural communities. In Bengal and Assam each village has a headman, who is responsible for collection of revenue and maintenance of law and order. There is also a village accountant and a village watchman, the latter a kind of police functionary of a low order. In the days when communication was difficult, the village heads or village councils headed by them used to exercise considerable power. But today the local civil and criminal courts in the towns or largest villages, and the revenue and police organizations have reduced the ancient functions of these village heads, and local village autonomy is constantly diminishing. In Bengal and Assam almost every district has a board, generally with two or more sub-district boards subordinate to it. In various areas there are Union Committees of District Boards to look after such inter-district matters as roads. The constitution of these boards is by election and appointment, but the tendency is to increase the elective element at the expense of the appointive. The membership is almost entirely Indian. The revenue of the boards is derived mostly from provincial taxation. Their expenditures are mostly on education, public health, water supply, roads, and bridges.

The municipalities are also governed by boards, headed by a mayor, with the membership largely elective. These control in urban areas the same kind of subjects that the district boards control in rural areas. They collect revenue for their own expenditure and make payments to the provincial revenues.

The municipalities in Bengal and Assam have been shown in tables accompanying paragraph 16.

The administration of justice in India is almost entirely a provincial matter. There is a Federal Court with jurisdiction in disputes between the provinces and with appellate jurisdiction over decisions of High Courts. It consists of a Chief Justice (Sir Maurice Gwyer, K.C.) and two puisne judges, Sir Shah Mahomed Sulaiman and Mr. M. R. Jayakar.

High Courts of Judicature exist in many provinces, as in Bengal. A High Court is a court of appeal on both civil and criminal cases from superior courts in the districts. It consists of a Chief Justice and such number of judges as may be deemed necessary by the

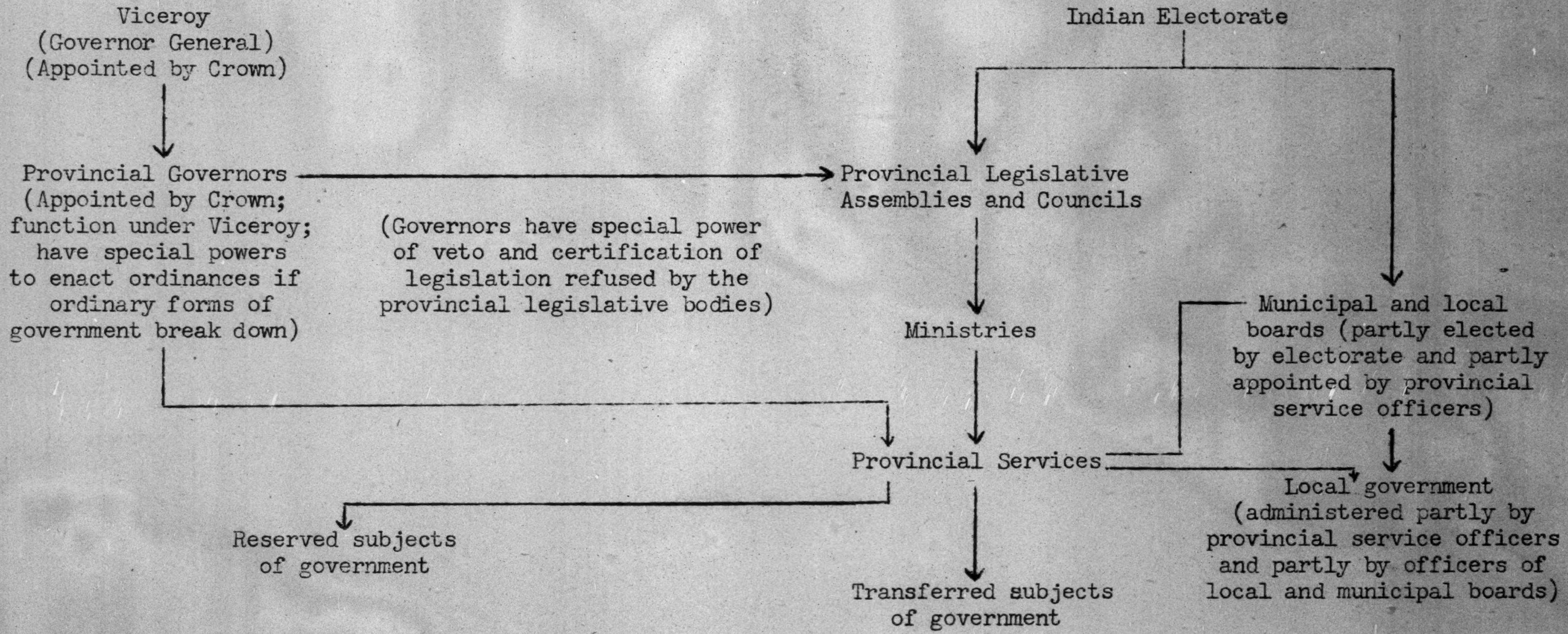
Crown and additional judges appointed by the Governor General. Assam is the only governor's province in India without a High Court or its equivalent and is presumably served by Calcutta.

The provinces of Bengal and Assam, excluding the city of Calcutta, are divided into sessions divisions consisting of one or more administrative districts, with a court of sessions and sessions judge and assistants if needed. Below these are magistrates' courts, and in the towns honorary magistrates may be appointed. In Calcutta there are Presidency magistrates, and benches of Justices of the Peace or honorary magistrates to handle less important cases. Trial before a court of sessions may be with assessors or juries.

Civil law, based upon English common law and Indian legal codes of pre-British times, applies alike to all the population, but criminal law varies on some matters, such as marriage, divorce, inheritance, according to the religion of the defendant, whether Christian, Hindu, or Muslim.

The governments of Bengal and Assam have their own Advocates General.

CHART OF PROVINCIAL GOVERNMENT


Viceroy
(Governor General)
(Appointed by Crown)
Provincial Governors
(Appointed by Crown;
function under Viceroy;
have special powers
to enact ordinances if
ordinary forms of
government break down)
(Governors have special power
of veto and certification of
legislation refused by the
provincial legislative bodies)
Indian Electorate
Provincial Legislative
Assemblies and Councils
Ministries
Provincial Services
Reserved subjects
of government
Transferred subjects
of government
Municipal and local
boards (partly elected
by electorate and partly
appointed by provincial
service officers)
Local government
(administered partly by
provincial service officers
and partly by officers of
local and municipal boards)

(10899)

29. Political Parties.

The two great political conflicts of India are those of Indian nationalism against British control and, internally of Hindu against Muslim. In Bengal both conflicts are waged at maximum intensity. Bengal is the section of India in which a nationalist intelligentsia first came into existence; it also has a population equally enough divided between Hindus (43.5%) and Muslims (54.5%) for strife between the two to be perennial. Both conflicts are continuous in Assam as well, though less acute than in Bengal. Class-conscious political movements of peasants and workers have a much smaller effect.

In Bengal, the immediate springs of nationalism lay in the intellectual renaissance. There western education first took hold; it was promulgated agnostically at the college which David Hare, a watchmaker, had founded in Calcutta in 1817, the nucleus of the present Calcutta University; it was promulgated with a Christian bias at the Serampore College, near Calcutta, founded in 1829 by the Baptist missionary William Carey. It is also in Bengal that the chief European city of India, Calcutta, is located, the seat of the government until 1911 and the most important channel for the influx of western ideas.

During the 19th century Bengal was the scene of important literary activity, which has lasted down to the present. It was a continuation in part of literary tendencies coming from previous centuries but in part the result of contact with western ideas. It was given impetus by the aspirations of the Hindu Bengalis to win not only equality with the Muslims who had ruled them before the British came but equality with the British as well. Among many authors the most influential was Bankim Chandra Chatterji (1939-94) who voiced the growing sentimental attachment for India as the Mystic

Mother, threatened by non-Hindu aggression and needing the defense of her sons Chatterji's works are quoted nowadays as admonitions to resist the British, but it is significant that in his best-known book, Ananda Math, the final message is that, undesirable as is the British occupation, it is still the Hindus' major defense against the Muslims and cannot be terminated until the Hindus have established superiority over their ancient rivals.

It would hardly be profitable to review here the history of nationalism in India or even in Bengal, which has been discussed at considerable length in paragraph 28 of the Survey of India, but certain outstanding events in Bengal may be noted because of their effect upon present-day India.

The first of these came during the governor-generalship of Lord Curzon, who took his post in 1899. He was a man of commanding intelligence, tremendous industry, strong will, and great courage, but two of his actions were sufficiently unpopular to become nationalist symbols for the educated classes. The first was his Universities Act (1904), by which he greatly improved these institutions but did so at the price of ruthlessly overriding Indian feeling. The trouble lay in the fact that he reduced the number of members of the various senates, or ruling bodies, of the universities and at the same time increased the number of members nominated by the chancellors of the universities, who were always the governors of the provinces in which the universities were located. In this way the nominated members came to be in the majority. The Bengalis greatly resented this action in its application to the Calcutta University, which they regarded as the symbol of their intellectual life and cultural renaissance. They opposed the act violently on the ground that the government was taking over control of the university out of hostility to the vigorous and independent Bengali intellectual development and its marked nationalist tendencies.

The second of Lord Curzon's inflammatory actions was the "partition of Bengal," announced in the year 1905. At that time the Bengal Presidency included Bihar and Orissa and contained about 78 million people, far too many for efficient administration. To give relief, Lord Curzon decreed that "eastern Bengal," containing nearly one-third of the population, should be cut off and made a separate province, an arrangement which administrative experts recommended as the most efficient way of handling the problem. But the Bengalis saw in the scheme a threat to their ethnic integrity. The line of division went through a linguistic entity, and the Bengalis therefore regarded it as an attempt to divide them and destroy their group consciousness and effective solidarity. The Muslims in India, and especially in Bengal, welcomed the change, for eastern Bengal was predominantly of their faith and would be taken out from under potential Hindu control. The Hindu portion of the Presidency, however, was incensed. Protests of all sorts were made; all India took an interest in the fight. Beginning in 1906, bomb outrages were perpetrated, terrorism set in, and a revolutionary movement resulted. Finally, in 1911, while another Viceroy was in office, the King-Emperor himself announced that the partition was nullified, and in 1912 a different scheme was put into effect which took Bihar and Orissa from Bengal and made of them a new province--divided in its turn by the 1935 constitution into two provinces. The later divisions have followed linguistic boundaries and have given almost as good administrative advantages as the first proposal. The immediate issue passed away, but the ill-feeling aroused has never been quenched. Bengal is still unpacified, and terroristic activity continues.

The partition of Bengal brought the Indian National Congress unequivocally into politics in 1908. It had previously been little more than a society for social reform but since then its primary object has been to advance Indian self-rule. It was also the occasion for the first use of the boycott (Swadeshi, "buy home goods") movement, a weapon later used by Gandhi. It also caused the formation of the Indian Muslim League 1905, as a consequence of the Muslims' approval of the partition, and their later efforts to retain it.

In December, 1911, India received another shock. King George V and Queen Mary had come to India to be crowned as Emperor and Empress of India at Delhi. On this visit the King-Emperor made two announcements, one of which, calculated to be conciliatory, reversed the partition of Bengal. The other, which proved amazingly provocative, decreed that the capital would be transferred from Calcutta to Delhi, in the center of the northern part of the country, the old seat of the Mughul empire. The pros and cons of this debated step need not be discussed here, since we are concerned only with its effect upon the course of nationalism. The people of Bengal saw a close connection between the subjects of King George's two announcements. They felt that the removal of the capital from their province was intended to diminish the importance of Bengal and to punish it for its successful contumacy in opposing the partition.

During the first world war and after, Bengal played an important part in nationalist activities, with the perennial terrorism, until the 1935 constitution finally became law.

The new constitution was first instituted after the elections of 1937. In these the provinces of Bengal and Assam were two of the four not controlled by the Indian National Congress, though in each Congress won more seats than any other single party. A Coalition Ministry was founded in Bengal from the representatives of other parties than Congress. The Premier was a Muslim (Mr. Fazlul Huq), whose strength lay in Muslim League support. In Assam, a Coalition Ministry headed by Congress was set up with a Muslim premier, Sir Muhammad Saadulla. The constitution, in spite of dissatisfaction among the nationalists, was working fairly well until the outbreak of the war between Britain and Germany.

There had, however, been a serious split in the Congress in 1938-39, under pressure from Subhas Chandra Bose, former lieutenant of C.R. Das. As Mayor of Calcutta, he had become powerful in Bengal and had a scattered following in other provinces. As leader of the most radical section of theCongress, he was elected president in 1938. His policies displeased Gandhi and Nehru, the most powerful figures of the Congress, but Bose succeeded in getting reelected in 1939. However, he lost his hold and resigned in April 1939, forming a group known as the Forward Bloc, a powerful party in Bengal at present. In August 1939 he was forced out of the presidency of the Bengal provincial Congress and was disqualified from holding office in Congress for three years, although he still kept a large following in Bengal. In July 1940 he was arrested for sedition and was tried in February 1941. The day before the trial, however, he disappeared and is now in Germany, where he broadcasts frequently to India.

After the failure of the Cripps Mission in March and April 1942, Bengal shared the general Indian disappointment. More than that she feared Japanese invasion following the Japanese success in occupying Burma. Calcutta and the industrial area lying nearby were open to bombing, if not to actual conquest, and many Indians doubted the British ability to resist Japanese power. The enemy had acquired mastery of the whole Bay of Bengal; Calcutta lay idle as a port; there was panic among the dock laborers, who fled from the city to their villages. It was not foreseen in India that the Japanese would turn to the southwest Pacific to check American and Australian moves there.

Confusion reigned among the political parties and in the government's actions as well. There were moments when the government tried to build up a guerilla force which would operate in eastern

Bengal, but there was no well-constructed plan to that end and the scheme was still-born. Thinking possibly to develop a vigorous spirit against the general defeatism of Indians, the government released the communists. The latter supported the war and would not oppose the independence movement.

The industrialists were lukewarm, even hostile, to the government's proposed scorched earth program. It would have destroyed such industrialism as India now owns when it was not yet certain that Japan would be hostile to an expanding program of industrialization. The government seemed uncertain whether or not it could enforce the scorched earth policy and took no convincing stand for action in the matter. In promoting war industries the industrialists, not unlike those in our own country, wanted financial responsibility to rest with the government and sought assurances against future financial risks to themselves arising from war-time expansion. Again the government took no positive stand for either private or government control of the nation's industry for war production.

The Indian National Congress was uncertain of its own course, Gandhi standing for non-violent resistance, which in practice seemed likely to be nothing more than appeasement, and Nehru asking for full armed opposition and mass organization against the prospective invaders. The Cripps proposals, by conceding almost all that the Muslim League had been asking on lines of "self-determination" ("Pakistan"), encouraged division within the country at its most critical hour. Congress, the strongest political party, was unable to deal with this problem of dividing India into several states. One group in Congress, led by Rajagopalachariar, wanted to conciliate the Muslim League by letting it have its way in return for immediate cooperation to secure independence from Britain and resist Japan; but he got no support and ended by resigning from Congress. On the other hand, the remaining Congress leaders could find no way of dealing with the League.

The Cripps proposals created a situation which revealed the weakness and indecision of the government, the divergent aims within Congress, and the single track character of Muslim League thinking. As the summer of 1942 wore on, the cry for independence was general in India, but no two groups wanted it on the same terms. The most vigorous voice was that of the Congress, which planned and adopted a scheme of mass civil disobedience to enforce its demand for independence. The government, by quick arrest of the leaders and vigorous methods of repression, checked the movement. Even then considerable damage was done by sporadic rioting and sabotage, though not enough to cripple military preparations and operations. The effect of the government's policy was to restore relative calm in the country by December 1942, but without producing any solution of the constitutional or communal issues. The fundamental deadlock remained liable at some future date to produce a more serious political situation than has existed at any time since the Mutiny of 1857.

Though the Congress leaders were jailed, the leaders of the other parties were not pleased at seeing a rival thus treated. Some leaders, like Rajagopalachariar, Shyam Prasad Mookerjee (of the Mahasabha, which is the Hindu communal party), Sir Tej Bahadur Sapru (leader of the Moderates), wanted negotiation and tried to mediate. The failure of such efforts led Mr. Mookerjee in October to resign from the Bengal Ministry, in which he held the finance portfolio.

Yet in the general turmoil there was a move toward restoration of order in Assam where government by Ministry, suspended in December 1941, was renewed when Mr. Saadullah was able to reform the Council Ministers.

The chief political parties in Bengal are:

Indian National Congress, which aims to represent all communities but actually is composed generally of Hindus.

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Forward Bloc, a split from the Congress, more radical than Congress and suspected of pro-Axis leanings, though no evidence exists publicly beyond the activities in Germany of its former head, Subhash Chandra Bose.

Muslim League, which is the most powerful Muslim party, and advocates Pakistan. The premier of Bengal, Mr. Fazlul Huq, has quarreled bitterly with Mr. Jinnah, president of the League, and can offer a fair degree of resistance to him in Bengal.

Hindu Mahasabha, which is strongly hostile to the Muslim League and has tried to bring the government of India to a compromise solution of the present constitutional tangle on the basis of no division of India into separate states.

Krishak Proja party, which represents peasants.

It seemed in the spring of 1942 that the local political conditions in Bengal and Assam would offer fertile ground for fifth-column activity. So far none has taken place, and confidential telegrams from American representatives in India state that the government of India officials have not identified any such enemy-inspired or aided activity. It is, however, impossible to say in advance that a Japanese invasion of Bengal and Assam would not be aided by local elements in the population. No risks can be taken in that connection. It is especially true that the conflict between different groups and between some of these groups and the government lends itself to use by the enemy.

30. Foreign Policy and International Relations.

The foreign policy of Bengal and Assam is that of India as a whole and is not a concern of the provinces as such. The foreign policy of India is determined in London. However, it is of considerable interest that at this time, under stress of Japanese aggression and success, India and China have become Asiatic allies. If Britain loosens its control of India, this association may come to influence the foreign policy of India. The visit of Chiang Kai-shek to India in February 1942, and the long friendship of Chiang with Nehru, a leader of the Indian National Congress, may extend this association into a post-war alliance of some sort. In that case, northeastern India will have a peculiar importance as the normal means of land communication, by way of northern Burma, between India and China.

Section V

ECONOMIC

31. General.

Northeastern India is the hub of the entire Indian war effort, for it contains India's coal, iron, and steel industries and almost all of India's engineering concerns. In the town of Calcutta, northeastern India has India's leading financial and commercial center. In addition, it contains the world's greatest concentration of jute mills and a wide range of light industries.

Most of the leading concerns of northeastern India are operated by firms of managing agents, the most important of which are British. These managing agents have generally been long established in India; they have a sound reputation and good credit with the leading banks, which are also British. The 24 leading British managing agents have 402 companies under their control, while the six leading Indian managing agents control 50 companies. It should be noted that the great Tata Iron and Steel Works, the keystone of all Indian war industry, is operated by the Indian firm of Tata, Sons, & Co.

Agricultural Resources.

Bengal has an area of 50 million acres. Of this total almost 30 million acres are used in agriculture. Assam has an area of 35 million acres, of which about eight million are used in agriculture; an additional 18 million acres are culturable but not cultivated. In both provinces rice occupies the largest area, 22 million acres in Bengal and over five million acres in Assam. This accounts for almost all land sown to food grains in the provinces, there being only very small areas sown to gram, barley, and such grains. A campaign to grow more food in Bengal has brought about an increase in the rice acreage, and the crop in 1941-42 showed an increase of 3.4 million tons as a result.

Next in importance of acreage are fibres, sown to 2 1/2 million acres in Bengal and 340,000 acres in Assam. This is almost all sown to jute. A very small amount of cotton is grown.

A million and a half acres in the two provinces grow oilseeds, chiefly rape and mustard, and to a less extent sesamum and linseed. There are also more than a million acres devoted to fruits and vegetables.

Tea, which is second only to rice in Assam, occupies in all over 600,000 acres. Tobacco and sugar cane both occupy over 300,000 acres, chiefly in Bengal.

In Bengal over five million acres and in Assam over 800,000 acres were sown more than once during the year 1938-39.

The following table gives the production, in tons, of the above-mentioned crops for 1938-39. All-India figures are added for comparison.

	Bengal	Assam	All-India
Rice	7,567,000	1,742,000	23,818,000
Jute	8,232,000	557,000*	9,635,000*
Rape and mustard	152,000	68,000	926,000
Sesamum	31,000		396,000
Tea	47,000	117,000	202,000
Tobacco	132,000	7,000	488,000
Raw sugar	439,000	37,000	4,108,000

*In bales of 400 pounds each.

Of all British Indian provinces, Assam ranks first in the production of tea, while Bengal ranks first in the production of jute and tobacco. The area as a whole is the world's leading producer of tea and jute and also grows more rice than any other area of comparable size.

At first glance, the livestock figures for northeastern India are even more imposing than those for food crops. Bengal had a total of 31,400,000 head of livestock in 1929-30, and the number is reported to have increased in the last dozen years. Cattle in Bengal in 1929-30 amounted to 24 million, buffaloes to more than a million, and goats to almost 5,500,000. Cattle in Assam in 1935 amounted to 5,440,000, buffaloes to 532,000, and goats to 757,000.

Despite these impressive statistics on foodstuffs and livestock, the people of northeastern India, particularly Bengal, suffer from a food shortage which is little **less than desperate.** The total amount of food produced is simply not enough for the 60,000,000 inhabitants of Bengal and the 10,000,000 inhabitants of Assam. Were the population deprived of only a small percentage of the food grown in Bengal and Assam, the inevitable result would be a sharp rise in sickness, disease, and starvation.

The huge surplus of livestock might seem to furnish an alternative source of food, but to the Hindus, who comprise almost one-half of the population of Assam, the cow is a sacred animal which must not be killed. Any effort to use the millions of surplus cattle as provisions for troops would arouse the fiercest resentment, not only in northeastern India but throughout the country as a whole.

Mineral Resources.

India is the eighth country in the world in the production of coal; her production in 1939 was 27.8 million tons and in 1940, 29.4 million tons. Of the amount produced, about two million tons were exported annually. The Jharia and Raniganj fields of eastern Bihar and western Bengal produce 70 percent of India's coal; actually Bihar accounts for 15 million tons and Bengal for half as much. This is Gondwana coal, from strata of limestone and shale. In these fields

181,000 workers were employed in 1937. In Assam, small fields, principally the Makum field in Lakhimpur district, produce about 300,000 tons. These are tertiary beds. The best Indian coal is inferior to average British coal, but it yields satisfactory coke.

It is estimated that railways consume about 30 percent of the coal used, and iron, steel, and brass foundries and engineering workshops, 22 percent. Bunkering accounts for about three or four percent. (Some wood and oil are used on Indian railways, the former chiefly on the Bombay, Baroda and Central India, the latter chiefly on the North Western Railway, both of them being outside northeastern India.)

If transportation facilities in Bihar and Bengal are interrupted, the industrial activity of all India suffers. It has been necessary to allot more wagons for the transport of coal since the outbreak of the war.

More than half of the iron ore at present mined in India comes from the Bihar and Orissa provinces, not far from the southwest border of Bengal. The annual yield is about 2,500,000 tons. This ore averages not less than 60 percent of iron. The proximity of these mines to the coal fields accounts for the location of the iron and steel industry of India in this area. There are also copper mines whose ore is smelted nearby.

India can produce at present only 15 percent of her ordinary requirements of oil, to say nothing of war requirements. This oil is produced in the Attock fields of the Punjab and the Digboi fields of Assam. The latter produced 1,500,000 barrels in 1940, that is, over two-thirds of the Indian production. There are said to be unexploited oil deposits at Lakhimpur and Cacha in Assam.

Timber.

There is no large-scale timber industry in Bengal or Assam, although the two provinces do have a total of 32,000 square miles of forests, three-fourths of it in Assam where 38 percent of the province is forest land. There are eleven saw mills in the Calcutta area, four in northeastern Assam and two in Sylhet, Assam. An important part of the wood cut in the forests is used by the peasants for fuel.

Fisheries.

The many streams of Bengal and even the swamps and paddy fields abound in fish. It is estimated that 80 percent of the people of Bengal eat fish, which serves to balance the usual rice diet. In Bengal 190,000 people and in Assam 44,000 people list fishing as their primary occupation.

The chief inland fishery is that of the hilsa which migrates from the sea in multitudes to spawn. Prawns and shrimps are abundant, and bekti and mullets are found in the estuaries. The chief salt-water fish is the Indian salmon, but fresh water fishing far exceeds sea fisheries in importance in Bengal. Some attempt was made long ago to develop an organized deep-sea fishing industry, using trawlers, but it failed financially. In 1923 the Bengal Fishery Department was abolished, but since then lack of development of the industry coupled with rising prices for fish in Calcutta has aroused public interest. The government recently financed an investigation and set aside Rs. 80,000 in the 1941-42 budget for the reestablishment of the department.

In 1942 the government of Bengal, in connection with its "Grow More Food" campaign, asked all owners of tanks in the Calcutta area to stock them with fish. The metropolitan area has, in the past, supplied only a small part--and a diminishing part-- of its needs.

32. Manufacturing.

Northeastern India contains the greatest concentration of modern industrial plants in India and practically all of the country's heavy industry. It accounts for about 75 percent of India's industrial activity. If the group of industries centered about the great Tata iron and steel works in eastern Bihar is included northeastern India has some 600,000 industrial workers, of whom at least 465,000 are employed in the metropolitan area of Calcutta.

Jute.

The principal industry of Bengal is the manufacture of jute. Of the 113 jute mills in India, 101 are in Bengal. These employ about 300,000 persons and have a capital investment of over Rs. 200 million. They produced 1,100,900 tons in 1940-41. All of these mills are in the Howrah, Hooghly, and Twenty-four Parganas districts,--i.e. in the Calcutta area, along the banks of the Hooghly River.

The jute mills are, on the average, much larger than the cotton mills in capital invested and in number of employees. Only a few of them have less than 2,000 workers, and the largest employ as many as 10,000. The industry has always been almost entirely in the hands of Scotsmen, while the capital has been British. Recently Indians have been entering the field and six of the largest mills are Indian-owned. Most of the firms belong to the Indian Jute Mills Association, which speaks for the industry.

Indian jute mills produce chiefly gunny cloth and gunny bags. Hessians, a lighter weight gunny than sacking, make up about 44 percent of the production. It is this variety which the United States imports, and which we know as burlap Special kinds of jute textiles are manufactured only in small amounts. The Ludlow Jute Company, owned by a Boston concern, manufactures and ships such cloth on order of the home office. Another American owned firm is the Angus Company which ships bags direct to the Bemis Brothers Bag Company of Boston.

By agreement, from March 1939 mills worked not more than 54 hours nor fewer than 40 hours per week, and from July 1939, 45 hours per week with 20 percent of the Hessian looms and 7½ percent of the sacking looms sealed. At the outbreak of the war, heavy government orders led to quick extension of hours to 60 per week. However, it was soon found that, partly due to the shortage of shipping, war orders could not absorb so large a production and stocks began to accumulate. Hours were reduced to 45, and mills stopped production one week each month in the latter part of 1940.

The export of bags fell off in 1940-41, although the export of cloth (of which the United States is the best customer) held up in quantity and increased in value. Export of raw jute declined drastically, and domestic consumption, which had risen in 1930-40, fell again in 1940-41. In 1941, the first year of crop regulation, the acreage planted to jute in India was reduced to two-thirds of the 1940 acreage. Again, in May 1942 the Indian Jute Mills Association agreed to limit hours to 54 per week and seal 10 percent of the looms.

In spite of efforts to reduce production, however, acreage under jute increased slightly in 1942 (at the cost of the program for increasing the production of sugar cane). The following estimates in the fall of 1942 show the prospects of the cultivators and of the industry:

1942-43 crop	12,500,000 bales
Now held by cultivators	1,000,000 "
Now held by mills	3,500,000 "
Total available	17,000,000 bales
Mill consumption	5,000 000 bales
Exports	1,200,000 "
Total demand	7,200,000 bales
Prospective carry-over	10,800,000 bales

It has been recommended by American experts that one-half the jute mills be closed and the others worked full time as a war measure, for the saving of power, but the government of India has found it impossible to press this solution upon the jute industry. Instead, the mill-owners have agreed (1) to stagger hours, in order to reduce their consumption of electricity at the peak, thus making more power available for other concerns; (2) to use a central coal dump, which would reduce by one-third the number of railway cars used to transport coal from the mines to the mills.

There has been continuous pressure on the government to extend financial relief to the jute growers. It was proposed that the government buy the surplus at Rs. 6 per maund; the price in November 1942 being Rs. 3 per maund. Finally in December 1942, arrangements were made to extend a loan of £1.5 millions from the government of India to the government of Bengal for the distribution among jute growers. This was to be supplemented by £350,000 from the government of Bengal. The money will be used for loans to the growers to enable them to hold stocks off the market until trade improves.

It has been recently reported (September 1942) that the transport problem is seriously affecting the suplly of jute to the mills. The Calcutta mills allowed their stock of raw jute to decline by about half, and now cannot replace it at the rate at which it is used up. The normal requirement is 600,000 bales a month; during July and August only 752,000 bales were brought to the mills. Should military and other traffic become still heavier or should further interruptions of transport occur, the problem of the jute industry will be aggravated.

The war has created a demand for a fabric of cotton warp and jute weft, for portable water-tanks, anti-gas caps, etc. and this is being produced in increasing amounts.

Tea.

More than 80 percent of India's tea production is centered in northeastern India. Out of a total of 991 factories employing 67,101 workers in 1937, Bengal and Assam accounted for 833 factories, employing 59,570 workers. Of these, two-thirds were in Assam. The factories are all seasonal. The vast majority employ fewer than 100 workers, and only one employs more than 300.

Iron and Steel.

a. The iron and steel industry of India is centered in the Calcutta area. The Tata Iron and Steel Company, located 150 miles from Calcutta in Tatanagar (Jamshedpur), just across the border in Bihar province, and the Steel Corporation of Bengal, located at Asansol, together produce 90 percent of the steel made in India. In 1937 they employed more than 38,000 workers out of a total of 39,800 employed in all the iron and steel mills in India. All raw materials are produced within a 200-mile radius: the principal iron mines are at Gorumahisani, 45 miles south of Jamshedpur (owned by Tata's), and at Noamundi, Gua, and Jaraikala, 75 miles southwest of Jamshedpur. This ore, richer than the Masabi ore of the United States is 60 percent iron. Coal, limestone of good quality, manganese ore, and dolomite also come from the southwest area. The iron and coal resources are adequate for any desired expansion Since water is also adequate, given efficient planning, the chief bottlenecks are transport and power. The steel companies are at present using the whole of their generating capacity

Before the war the annual production of pig iron was more than 1.7 million tons, of steel ingots almost 1 million tons, of blooms, billets and bars 800,000 tons, and of finished steel 750,000 tons. For the production of iron, Tata's had three blast furnaces of a modern type capable of producing one million tons. The Indian Iron and Steel Company at Burnpur (Asansol) had two modern blast furnaces which turned out 331,000 tons in 1930. The Bengal Iron Company at Kulti had two small furnaces. (The Mysore Iron Works was the fourth and smallest of the iron mills.)

The Indian Iron and Steel Company and the Bengal Iron Company were amalgamated in 1936 as the Steel Corporation of Bengal. Their combined capacity was 850,000 tons of pig iron and 100,000 tons of cast iron pipes, sleepers, and general iron castings. In 1939 this company set up a steel plant at Burnpar with a planned capacity of 200,000 to 250,000 tons per annum.

The National Iron and Steel Company at Belur (Howrah) employed 500 workmen in 1938.

b. Tata Iron and Steel Company. The steel plant of Tata Iron and Steel Company consists of a blast furnace plant with five modern blast furnaces, a 40 inch blooming mill, a continous sheet bar and billet mill, a merchant mill, a plate mill, and three hot mills. These are in large part of American design and up to date. One blast furnace of the most modern type began operations in December 1939. Also in 1939-40 the company completed a second gas-cleaning plant, a third mechanized unit of sheet mills, a sheet annealing furnace, a magnesite plant, and two ovens for controlled cooling of rails; while in 1940-41 they constructed a third battery of coke-ovens, an ingot mould foundry, and a billet mill. An acid steel plant which will increase ingot production by 200,000 tons and produce acid steel for the wheel plant should by now have come into operation, thereby raising production of acid steel to 70,000 tons.

The production of iron and steel is efficiently managed, the output in some cases exceeding that of similar plants in the United States. In 1941-42 there was an output of 1,237,000 gross tons of pig iron and 29,000 tons of ferro-manganese. A million tons of the pig iron was used by the foundry and steel melting shops and the remainder was pigged. At present only enough ferro-manganese is produced for the use of the company, but the output could be increased. The blooming mill through which all ingots go had a record output of 953,599 tons in 1941-42. The mill could produce one million tons of blooms per year if it were not required to roll alloy steel ingots. The sheet bar and the billet mill (the only continuous mill rolling bars and sleepers in the world) had a record output of 577,289 tons. The merchant mill had a record output of 172,344 tons. The plate mill, which has an 82,000 ton capacity on a two-shift basis, produced 82,323 tons in 1941-2. By working three shifts and adding some finishing equipment, the output could be raised to 120,000 to 144,000 tons per annum. This mill rolls steel plates for wagon building, bridge building, etc. It is now rolling special steels, including armor plate. In the hot mills the capacity of black sheets is 160,000 tons, that of the annealing section 96,000 tons, that of the galvanizing section 125,000 tons of 24-gauge sheets.

Among the special steels produced by Tata's since September 1939 are bullet-proof armor plate of special alloy steel for armored vehicles, high-speed steel for machine tools, chrome molybdenum steel for aircraft, and stainless steel for surgical instruments. The acid steel being produced is suitable for gun forgings, gun carriages, locomotive parts, railway springs, and machine-gun springs.

The Tata Company brought into operation recently a plant for the manufacture of railway wheels, axles, and tires, and a plant for the manufacture of benzol and toluol for high explosives. Tata also produces sulphuric acid.

Agrico, a plant for the production of small tools (pickaxes, hammers, and the like) can manufacture two million pieces per annum on a 24-hour basis. The normal demand for such tools is about two million, and this demand has been met by Agrico, with some imports. It is now proposed to double the capacity of the plant, and a full output of four million pieces is expected by the middle of 1943.

c. Summary. In 1939 there were in all 14 basic open hearth furnaces. 4 acid open hearth furnaces, 8 electric furnaces.

Figures on expanded production are available in confidential files of the OSS and may be consulted on application by proper authorities.

Other Mineral and Metal Works.

The Tinplate Company of India was established in 1920 by Tata's and the Burmah Oil Company. Its plant at Golmuri, near Tatanagar, is the only producer of tin plate in India. India's peace-time consumption of tin plate amounts to 60,000 tons, of which two-thirds is used for four-gallon kerosene tins. Production figures for the Tinplate Company follow:

	Steel consumed	Tinplate produced
1939	78,137	59,065
1940	83,042	61,787
1941	75,689	57,340

This plant makes sulphuric acid for its own use.

The only other large re-roller of steel in India is the Indian Steel and Wire Products Company, which also receives its bars from Tata's. In 1938-39 it produced 40,000 tons of rods, wires, and nails. This fell to 29,000 tons in 1939-40 because of the difficulty of obtaining steel. Confidential information of the current capacity of re-rollers catering to the bazaar trade is available in the OSS files.

Guest, Keen, Williams, Ltd., have an old but efficient mill in Howrah manufacturing bolts, nuts and rivets. Despite Indian production of 20,000 tons per year, there is a great shortage of these items.

Companies processing steel are unable to work to capacity because of the lack of material. The whole output of iron and steel in India is under a government licensing and quota system. In its turn, the output of steel is limited chiefly by inadequacy of electric power and difficulties of transport.

The Indian Cable Company, a subsidiary of Tata's, has already produced 35,000 miles of tinned copper wire and 16,000 miles of telephone wire, and is turning out "de-gaussing" cable for the navy. The cables are rubber insulated only. The capacity is about 700,000 yards per week.

India is now, for the first time, producing transformers and low tension insulators and is experimenting with high tension insulators.

The Indian Copper Corporation, with an ore dressing plant at Moubhandar (in Singhbhum district of Bihar) employing 1,321 workers, is the only such company reported in Large Industrial Establishments in 1937.

The Aluminum Corporation of India, established in 1938, is building a plant for the production of alumina, aluminum, and sheet at Anupnagar, near Asansol. The ore plant was reported to be almost ready to produce alumina in July 1942. Ingots were to be produced by the end of the year if generators arrived from America. The annual capacity of the smelter is to be 3,000 tons of ingots. There are several producers of aluminum ware in Calcutta, employing some 1,400 people. The largest, Jeewanlal, Ltd., is controlled by the Aluminum Production Company of India, a Canadian-British firm.

The Assam Oil Company (controlled by the Burmah Oil Company) has a refinery at Digboi (Lakhimpur), whose capacity is 4,500 barrels daily. Two Dubbs cracking units have been installed with a capacity of 500 barrels daily. The daily cracking capacity is now 2,100 barrels.

In 1938 the output of the Digboi refinery in gallons was as follows:

Kerosene	23,196,000
Batching and lubricating oil	186,000
Spirit	12,995,000
Wax	1,590,000
Sundry oils	5,646,000

The company also produces sulphuric acid.

Oil storage facilities in Bengal are provided by Burmah-Shell, the Burmah Oil Company, the Standard-Vacuum Oil Company, and the Valvoline Oil Company. Tank storage capacity in imperial gallons is as follows:

	Calcutta	Chittagong
Motor spirit	7,899,000	620,000
Aviation spirit	1,612,000	
Diesel oil	3,773,000	
H.S.D. oil	412,000	
Furnace oil	2,478.000	500.000
Kerosene	22,305,000	3,160,000

A firm in Calcutta produces 20,000 to 25,000 steel drums per month. There is some thought of locating a new drum plant at Tatanagar. Kerosene tins are produced by both Burmah-Shell and Caltex. The monthly output of tins is as follows:

	One-gallon tins		Four-gallon tins	
	Average	Maximum	Average	Maximum
Calcutta	70,495	180,000	678,191	1,623,000
Chittagong			233,000	408,000
Digboi			312,000	520,000

Engineering Works, etc.

In all kinds of engineering works, 78,000 workers were employed in Bengal during 1937 and 2,000 workers in Assam. Of these general engineering accounted for 24,000. The largest of these firms in the Calcutta area were the Port Engineering Works, the Guest, Keen, Williams Railway Appliance Works, the Corporation of Calcutta Workshop the Britannia Engineering Works, the Jessup and Company Structural Works and Mechanical Works at Dum-Dum, the Hukumchand Electrical Steel Works, the Saxby and Farmer's Railway Signal Works, and the Clive Works. Each of these employed several hundred men. The Eastern Light

Casting Company at Kulti (near Asansol) employed more than a thousand workers. The Central Telegraph Office has workshops in Alipore (Calcutta) which also employed more than a thousand people in 1937.

The principal engineering works are railway workshops. These employed 27,000 men in 1937. The workshops of the Eastern Bengal Railway center are at Kanchrapara (at Barrackpore, 14 miles northeast of Calcutta). Here are the Locomotive Workshop, Carriage and Waggon Works, and the Electrical shops. There is also a large workshop at Saidpur (Rangpur). The main workshops of the Bengal-Nagpur Railway are at Khargpur, 8 miles from Midnapore. These include the Locomotive Section, the Carriage Section, the Wagon Section, the Electric Section, and the Locomotive Shed Workshop. The East Indian Railway Workshops have Howrah as their centre where the Lillooah Carriage and Wagon shops employ more than 7,000 workers and the Power Station 200 more. The Locomotive and Carriage Works of the Assam Bengal Railway are at Pahartali, Chittagong. In addition to these, smaller railway workshops are at Asansol, Dacca, Darjeeling, and Entally.

Many of these railway workshops are now partially engaged in war work. These include the locomotive workshops at Kanchrapara, Khargpur, Jamalpur, the carriage and wagon works at Kanchrapara and Lillooah, the signal workshops at Entally and Howrah, and the workshops at Saidpur. In addition to these, the workshops of the East India Railway at Tatanagar are engaged wholly in war work.

Affiliated to the Steel Corporation of Bengal is the Indian Standard Wagon Company which builds various types of railway rolling stock in its plant at Burnpur, although it does not produce locomotives. The Gresham and Craven Company, which has been highly spoken of by government officials, ordinarily makes railway equipment but is now producing ordnance.

In the Calcutta area there were 15 dockyards and ship engineering firms employing 15,000 persons before the war. The largest of these were the Howrah Iron Works, MacNeill and Company, and the I.G.N. and Railway Company's Dockyard, each employing two to five thousand men. The main ship repair firms are the Garden Reach, the Shalimar, and the Hooghly Dock Company.

There are six firms in the Calcutta area which produce bitumen boilers for roadbuilding. The total output is 50 to 55 per month.

The Civilian Repair Organization has been set up in Calcutta under government control for the repair of aircraft and the manufacture of ground equipment. The railway workshops at Kanchrapara and about twenty workshops in Calcutta are used.

The manufacture of machine tools in India has been extremely limited. The India Machinery Company, formed in 1937 from the B. and W. Scales Company and a number of other small shops, makes lathes, shaping machines, hand presses, etc. This company is to be expanded.

These concerns and workshops are now chiefly responsible for the production of the large range of engineering items essential in modern warfare--water tanks, gasoline tanks, drums, sheds, workshops, bridges, hangars, road-making equipment, cranes (up to fifty tons in capacity), trench shelters, Nissen huts, garages, Decauville railway track and rolling stock, signal equipment, etc. The shipbuilding concerns are turning out corvettes of the "Bangor" class, trawlers of the "Basset" class, and smaller vessels from river craft down to tugs and lifeboats. The boilers and propelling machinery for these vessels still have to be imported, though first attempts will soon be made to produce propelling machinery in India. Construction of floating docks for the Admiralty was scheduled to begin late in 1941.

Munitions.

Calcutta is the center of munitions production in India. The three chief government ordnance factories are all north of Calcutta, on the east bank of the Hooghly River. Both the "Rifle Factory" and the completely rebuilt "Metal and Steel Factory" are at Ichapur (Ishapore), a dozen miles north of the city proper, while the "Gun and Shell Factory" is at Cossipore, just outside Calcutta. Since the war began, much new equipment has been added to these arsenals, including a new 2,000 ton forging press, a new 28" rolling mill, a new 10" mill, a new open-hearth steel furnace, and an electric gun heat treatment plant. An entirely new plant for the manufacture of high explosives was expected to come into operation about the end of 1941. Before the war the three arsenals near Calcutta employed 7,000 men, but the number of workers has undoubtedly increased during the past two and a half years. It has been recommended that the railways workshops be used to a still greater extent for the production of munitions.

On the other hand, certain expansions orginally planned for the Calcutta area are now to be carried out in other less vulnerable parts of India, and it has recently been decided to carry on more locomotive and rolling stock repair in view of the deterioration in railway equipment and the damage done in the recent campaign of sabotage. The range of war materials now being produced in India is quite large: it includes shells of several types, hand grenades, small arms ammunition, light machine guns, rifles, anti-tank guns, 3.7" howitzers, Vickers Berthier guns, trench mortars, mines, bombs, and depth charges. Production of some of these items, particularly guns, is very low.

Motor Vehicles.

Ford has an assembly plant in Calcutta with a monthly output of 750 vehicles, chiefly special types including armored. This plant employed 92 men in December 1941. Chrysler has no assembly plant but estimates that it could assemble 16 cars a day at dealers in Calcutta.

Capacity for building bodies for these vehicles in the Calcutta area is adequate.

Armored vehicles are now being made in railway workshops in Bengal.

Other Industries.

The two most important companies producing vitreous enamelware are both located in Calcutta: the Bengal Enamel Works and the Sur Enamel and Stamping Works. The total manufacture of this ware is only 50 percent of defense requirements.

The Mathematical Instruments Office in Calcutta, the sole producer of optical scientific instruments, is being expanded. Remington Rand has a typewriter assembly plant in Calcutta, and the Dunlop tire manufacturing plant at Sahaganj, Calcutta has been in operation since 1936. It was designed to produce 600 casings a day, with a possible capacity of 1,000 a day. Since the war, the plant has been expanded and two shifts are working, but the output is a commercial secret. Output was expected to exceed 5,000 tires a month before the end of 1941.

The Government Harness and Saddlery Depot in Calcutta has recently been converted into a leather manufacturing center, serving as a supplement to the main factory at Cawnpore. Meanwhile the Bata Shoe plant has ten large buildings and produces 300,000 pairs of shoes a week.

There are 23 cotton mills employing 34,000 workers, 6 silk mills employing 1,900, and 26 hosiery mills employing 1,750 in Bengal.

Calcutta has the wide range of light industries that are commonly found in great centers: chemical works, especially the manufacture of matches, employed 16,000 in 1938; food, drink, and tobacco 13,000; paper and printing 11,000; all other light industry 20,000. Some of these lines, particularly in the chemical field, are now engaged in war work.

Other Industrial Centers

Besides Calcutta and Tatanagar, there are a dozen smaller industrial centers in the rest of eastern India.

Dacca, an important textile center. also has four general engineering shops, one small railway workshop, one dockyard for the repair of river vessels, one glass factory, one sugar mill.

Chittagong has five small engineering concerns, employing 500 workers, and the chief workshop of the Assam-Bengal Railway, employing 2,100.

Asansol and vicinity, besides the coal mines, iron plant and railway workshops already mentioned, contains eight general engineering shops employing 2,570, one paper mill, four cement plants, and 52 small rice mills.

Jalpaiguri, in the heart of the tea-growing district of northern Bengal, has 150 tea factories and one small railway workshop.

Darjeeling, 50 miles northwest of Jalpaiguri, also has many tea factories and one small railway workshop.

Bakarganj District, in southeastern Bengal, has two general engineering shops employing 649.

In Assam there are small engineering workshops at Sylhet and Shillong and larger shops in Sibsagar and Lakhimpur Districts. Lakhimpur District also contains a railway workshop employing 500 men. There are tea or rice mills in all of the districts of Assam except the Khasi and Jaintia Hill District. There are two plywood factories with an annual output of nine million square feet.

Note on the Recent Industrial Situation in India.

Because of political disturbances and especially the shut-down of the Tata Iron and Steel Company in August and September 1942, there was a loss of 100,000 tons of steel production. In December it was reported that materials and equipment from the United States were essential if a major industrial breakdown in India was to be averted. Steel plates, high-speed tools, and various steel products were most critically needed.

LIST OF FIRMS ENGAGED IN WORK OF NATIONAL IMPORTANCE IN NORTHEASTERN INDIA

(not including railway workshops named elsewhere)

Aluminum Corp. of India, Anupnagar,-producers of alumina.
Angus Engineering Works, Hooghly,-Engineers, founders, machinists, forgemasters.
Assam Bengal Railway Co., Chittagong,-Locomotive and carriage workshops.
Assam Oil Co., Digboi.
Babcock & Willcox, Calcutta,-manufacturers of water tube boilers and electric cranes.
Balmer-Lawrie, Ltd., Calcutta, Manufacturers of steel drums.
Bengal Nagpur Railway Co., Khargpur,-Locomotive and carriage workshops.
Bengal Chemical & Pharmaceutical Works, Narikeldanga and Panihati.
Braithwaite & Co. (India) Ltd., Kidderpore, Calcutta,-Constructional and bridge engineers.
Britannia Engineering Co., Titaghur, Bengal,-Manufacturer and designer of machinery.
British India Electric Construction Co., Kidderpore,-Manufacturers of fans and other electrical equipment.
Burmah-Shell Oil Storage & Distributing Co., Budge-Budge,-
Burn & Co., Howrah Iron Works, Howrah,-Engineers, iron and brass founders, ship and boat builders, bridge contractors, machinist.
Calcutta Tramways Co., Ltd., Calcutta,-Nonapukor Workshops.
Clive Works, Kidderpore,-Engineers.
Dunlop Rubber Company, Sahagunj, Cycle tubes, tires.
Eastern Light Casting Co., Kulti,
G.T.R. Co. Engineering Works, Dum-Dum,-Brass, gunmetal cocks, valves, boiler mountings, hydraulic appliances.
Gresham and Craven, manufacturers of railway equipment and ordnance.
Guest, Keen, Williams, Ltd. Railway Works, Howrah,-Railway appliances, public works and signal engineers.
Hooghly Docking & Engineering Co., Salkia,-Shipbuilders, and repairers.
Hukumchand Electric Steel Works, Ballyganj.
Imperial Chemical Industries, Calcutta,-Distributors.
India Electric Works, Entally, Calcutta,-Electric engineers, fans, telegraph and telephone instruments, signal apparatus, etc.
India General Navigation and Rly. Co., Garden Reach,-Owns 678 vessels plying rivers of Assam and Bengal
Indian Cable Company Ltd., Tatanagar,-Manufacturers of electric wire, cables, aluminum and copper weld conductors, etc.
Indian Standard Wagon Co., Burnpur,-Railway carriage and wagon builders, steel castings, rolling stock.
Indian Steel & Wire Products, Jamshedpur,-Manufacturers of M.S. bars, wire nails, wire products of all kinds.
Jessop & Co., Ltd., Dum-Dum,-Structural and mechanical engineers.
Maya Engineering Co. Ltd., Tollygunj, Calcutta,-Manufacture of various types pumps.
Macneill & Co., Garden Reach,-Shipbuilders & engineers
Port Engineering Works, Howrah,-Engineers, founders, boat builders, barges, flats, pontoons, buoys, ferrous and non-ferrous castings.

Remington-Rand, Calcutta,-Typewriters.
Saxby and Farmer (India) Ltd., Entally, Calcutta,-Railway signal engineers and contractor.
Steel Corporation of Bengal Ltd., Burnpur, Asansol,-Iron and steel works.
J. Stone and Co. (India) Ltd., Kidderpore, Calcutta,-Mechanical and electrical engineers and metal founders.
Tata Iron and Steel Co. Ltd. Jamshedpur,-Gigantic steel and iron works with modern plant.
Tinplate Co. of India. Ltd., Golmuri, Singhbhum,-Manufacturers of tinplate.
Titaghur Paper Mills, Titaghur and Kankinarah.

33. Utilities.

a. Power Plants. Electrical generating plants in India are concentrated in the ports and industrial areas, with Bombay and Calcutta as the principal centers. Bengal has generating plants of 366,000 k.w. capacity, of which 289,000 k.w. is in the vicinity of Calcutta. In a 500 mile radius, including Tatanagar in Bihar province, the capacity is 577,400 k.w., or one-third of the Indian total. Of this, the Tata Iron and Steel Company accounts for 80,000 k.w. and the Steel Corporation of Bengal for 26,000 k.w. This is all steam generated, depending upon the nearby coal fields.

Figures for 1938 show that there were 11 coal-fired electrical generating and transforming stations in the province of Bengal, employing a total of 2,487 people. Four of the stations were in the Twenty-four Parganas, supplying Calcutta and the surrounding industrial area, two were in Burdwan, and one each in Midnapore, Howrah, Dacca, Mymensingh, and Chittagong. The Tata Steel Works at Tatanagar and the Indian Iron and Steel Company Works at Kulti and Burnpur are equipped with their own power plants.

The Dacca supply is furnished by the Octavius Steel Company, Ltd. The Midnapore plant is that of the B. N. Railway shops at Khargpur, with a capacity of 4,750 k.w. The Dishergarh Supply Company at Sitarampur, Burdwan, has a capacity of 16,000 k.w.

The largest company is the Calcutta Electric Supply Company, the main distributor to the Calcutta area. It owns three of the Calcutta power stations, employs about a thousand workers, and has a capacity of over 200,000 k.w. in its main plant alone. Its sales in 1941 were 493 million units, 80 percent of it being for industrial consumption.

In Calcutta the generation and distribution of electricity during 1937-38 showed a considerable increase over previous years. The total generated for Calcutta during 1936-37 was 4,730,025 units, as against 1,991,946 units in 1934-35. Distribution is handled by single cable lines between the central power stations and consuming stations. A major part of the electricity generated is consumed by the Drainage and Water Works Department for pumping power. The balance is consumed by workshops and factories and by auxiliary sub-stations for lighting purposes.

Hydro-electric power is practically undeveloped in North-eastern India, where the coal supply is an adequate alternative source. The Darjeeling Municipal Power House, with a capacity of 1,200 k.w., is hydro-electric, as is also a small plant in Shillong, Assam. In Assam a plant attached to the Digboi oil fields at Dibrugarh and a plant at Gauhati are both Diesel. There is also a plant at Jorhat, in the Sibsagar District, on the Brahmaputra River.

The whole of the generating capacity in the Calcutta area is required for present use, and expansion is dependent upon import of vital equipment. The demand for such equipment has grown with the war expansion of industry. However, the attractiveness of this area for war production, based on the presence of the steel industry, has been considerably modified by its exposed position. Indeed, the government of India has considered the possibility of moving generating equipment to an inland location. One plant with a capacity of 15,000 k.w. is to be moved to the United Provinces.

b. Ice and Aerated Water Plants. Figures for 1938 show that there were 12 plants in the province of Bengal for the manufacture of ice and aerated water. Of that number, four were in Calcutta, five in the Twenty-four Parganas, two in Howrah, and one in Dacca, employing altogether 708 persons.

At Calcutta there is only one available refrigerated warehouse, owned and operated by the Calcutta Cold Storage Company Ltd.

It is located at Hide Road Dock, covers 200,000 cu. ft., and has a capacity of 2,000 tons of goods, which, it is estimated, could be increased by 500 tons.

In the province of Assam, there is one ice manufacturing plant, located at Goalpara, which employs 18 persons.

c. Water Works. The problem of water supply in India particularly during the dry season is fairly acute. Calcutta's water supply is furnished by an elevated steel reservoir at Talla, two miles north of the city, which has a capacity of 9,000,000 gallons. The quantity of filtered water supplied to Calcutta during 1936-37 amounted to 67,800,000 gallons, and that of unfiltered water to about 57,700,000 gallons. In 1938 there were 62,000 house connections for filtered water and 49,000 for unfiltered. There was a total of 521 miles of pipe for filtered and 348 miles for unfiltered water.

No specific data are available for the rest of Bengal or for Assam.

d. Gas Works. Gas works in Bengal total six and are located as follows: three in the Twenty-four Parganas, one at Midnapore, and two in Howrah. In 1938 they employed a total of 758 persons.

There is a dual (gas and electricity) street lighting system in Calcutta. Gas is furnished by the Oriental Gas Company, Ltd.

No data are available on gas installations in Assam.

e. Sanitary Installations. Because of the inadequate water supply, sewage disposal in most regions of India is extremely bad. There is a sewage disposal system in parts of Calcutta, but in the working class district hand disposal of sewage still prevails during the dry season.

34. Railroads.

The transport system of northeastern India has been limited largely by the position of its two mightiest rivers, the Ganges and the Brahmaputra. The Ganges flows down from the northwest through the heart of Bengal to the sea; the Brahmaputra flows west across Assam until it enters northern Bengal; there it runs south to join the Ganges at Goalundo Ghat. The two rivers together form a giant "Y" whose stem lies on a northwest-southeast axis. The importance of these two rivers as obstacles to road and rail transport can be judged from the fact that the Brahmaputra throughout its entire length from northeastern Assam to the Bay of Bengal is not crossed by a single bridge of any sort; it effectively splits northeastern India into two parts and prevents through trips by rail between Bengal and most of Assam. The Ganges River is bridged only once in northeastern India--by the Hardinge (Railway) Bridge west of Patna, which enables the main tracks of the Eastern Bengal line to cross the Ganges from southern Bengal and continue towards the north. Should the Hardinge Bridge be put out of commission, there would remain no railway bridge across the Ganges in all Bengal or Bihar. Trains would have to cross at Benares, 485 miles further up the river.

The Railroad Network.

The East Indian Railway and the Bengal-Nagpur Railway. That part of northeastern India which lies to the west of the Ganges River--that is, west of the "Y" described above--is served by the densest railway network in India and includes India's greatest railway center, Calcutta. The East Indian Railway (E.I.R.), the premier railway of the country, has four tracks running by several routes down to Calcutta from the central and upper Ganges valley. The double-tracked lines of the Bengal-Nagpur Railway (B.N.R.) lead into Calcutta from Khargpur, 72 miles to the west. Khargpur, in the southwestern corner of Bengal, is the junction point for three of the B. N. R.'s lines, one up from Madras province, one down from the coalfields, and one from Nagpur, which is 703 miles west of Calcutta. This last line (Nagpur-Khargpur-Calcutta) connects at Nagpur with the Great Indian Peninsula Railway from Bombay and provides the fastest and most direct route from Bombay to Calcutta--1,223 miles in 38 hours.

The E. I. R. and the B. N. R. are the two largest freight-carrying railroads in India. Like the rest of the main Indian lines, they are both broad gauge--5' 6". The permanent way of the E. I. R. consists of rails varying in weight from 85 to 115 lbs. and has both iron and wooden sleepers, though less than 30 percent of the sleepers are wooden. A few of the sections of the railroad, particularly the secondary line which runs north from Calcutta to Barharwa, have 75 lb. rails. All of the E. I. R. lines are ballasted with stone. The ruling gradient on the main E. I. R. lines in northeastern India is one in 300; on the Calcutta-Barharwa line it is one in 100. In rolling stock, the E. I. R. is better equipped than any other Indian line. At the end of March 1938 it had 1,542 locomotives with a total tractive effort of 36,655,166 lbs.; at the same time it had 49,103 freight cars of all types. In considering these figures, however, it must be noted that the E. I. R. serves the United Provinces and Bihar as well as Bengal and that its track mileage in Bengal is much smaller than in either the United Provinces or Bihar.

The permanent way of the B. N. R. consists of 75 lb., 85 lb., and 90 lb. steel rails on transverse wooden, steel, and cast iron pot sleepers. The line is ballasted almost throughout with stone. On the main line there are no curves sharper than 1,000 ft. radius. The gradient from Calcutta to Khargpur is one in 200; elsewhere it is sharper. At the end of March 1938 the B. N. R. had 656 locomotives with a total tractive effort of 20,341,604 lbs. At the same time it had 21,964 freight cars of all types. As in the case of the E. I. R., only a small percentage of the B. N. R.'s lines are in northeastern India proper.

The Eastern Bengal Railway. This railway is the only north-south line of northeastern India. Its main double-tracked broad gauge line runs from Calcutta in a north-northeast direction to the Ganges River, which it crosses by the Hardinge Bridge. Once across the Ganges, the line splits in three directions: the main single-tracked line continues north through the center of Bengal almost to Darjeeling in the tea-growing district; a second branch goes east to the banks of the Brahmaputra at Sirajganj Ghat; the third branch runs northwest to Amnura and then due west until it reaches the Ganges River. All of these lines are broad gauge.

The Eastern Bengal system, in addition, includes more than a thousand miles of metre gauge lines. The most important of these metre gauge lines is the only east-west connection across the northern rim of northeastern India. This line runs from Katihar in eastern Bihar due east through northern Bengal, crossing the north-south broad gauge line at Parbatipur; from Parbatipur the line continues far into Assam where it runs for several hundred miles somewhat to the north of the Brahmaputra River. Besides this chief metre gauge line, there are a number of others run by the E. B., including a loop leaving the broad gauge north-south line at Santahar and running east and then north, crossing the east-west metre gauge line and continuing almost to the border of Bhutan. This loop line touches the Brahmaputra at Tista Mukh Ghat, from which point there is ferry service across the river to Bahadurabad on the east bank of the Brahmaputra. From

Bahadurabad the E. B. operates another metre gauge line which runs southeast to Mymensingh and Dacca; this line joins up at two places with the metre gauge Assam-Bengal line from Chittagong.

Besides these metre gauge lines and its main broad gauge lines, the E. B. operates several little broad gauge lines running south of Calcutta and several important broad gauge branch lines, including one running northeast to Jessore and then south to Khulna. Its broad gauge lines added to its metre gauge lines make the E. B. system the most important one operating within northeast India.

The permanent way of the broad gauge E. B. lines consists of 90 lb. flat-footed steel rails laid on wooden, steel, cast iron, or cement concrete sleepers. The line is ballasted with brick, stone, and shingles; the sharpest curve is of 955 ft. radius; the ruling gradient is one in 300. At the end of March 1938 the line had 294 locomotives with a total tractive effort of 7,462,646 lbs. and a total of 8,171 freight cars.

The permanent way of the metre gauge E. B. lines consists of 50 lb. and 60 lb. flat-footed steel rails on wooden sleepers. The line is ballasted almost throughout with brick, stone, or shingle; the sharpest curve is of 500 ft. radius; and the ruling gradient is one in 200. At the end of March 1938 the metre gauge E. B. lines had 207 locomotives with a total tractive effort of 3,279,481 lbs. and 5,419 freight cars.

The route mileage of the metre gauge E. B. lines is 1,039 miles; the track mileage is 1,360 miles. The route mileage for the metre gauge and broad gauge E. B. lines combined is 2,009 miles; total track mileage, 3,097 miles.

The Assam-Bengal Railway. The Assam-Bengal Railway (A. B.) lies east of the great "Y" formed by the Ganges and Brahmaputra Rivers and has no through connection with any railroad west of the Brahmaputra. The starting point of the A. B. line is Chittagong, one of India's chief ports. From Chittagong the main single-track metre gauge line runs north and then northeast all the way to Tinsukia in the northeastern corner of Assam. At Tinsukia the A. B. Railway meets the metre gauge line of the small Dibru-Sadiya Railway which connects Tinsukia with Dibrugarh, near the Brahmaputra, with Saikhoa Ghat, opposite Sadiya, and with Ledo, in the small coal fields of northeast Assam. Besides its main line, the A. B. Railway has a number of branches running west to ferry and river steamer connections on the Brahmaputra, Surma, Meghna, and the Padma (lower Ganges) Rivers. One of these branches connects with the above-mentioned E. B. branch line from Bahadurabad to Dacca; a second important branch line runs northwest from Lumding to Pandu, on the Brahmaputra, opposite Amingaon. Amingaon is a railhead of the east-west E. B. metre gauge line.

The permanent way of the A. B. Railway consists of 167 miles of 60 lb. rails, 87 miles of 80 lb. second-hand rails, and the rest of 50 lb. flat-footed steel rails, laid on various kinds of wooden sleepers. Eight of the small branch lines are laid with 41¼ lb. steel rails. The entire line has been ballasted with broken brick, stone, and laterite. The sharpest permanent curve is of 382 ft. radius. The steepest gradient is one in 37 for a distance of 10 miles. This gradient is in the hill section of the line, 62 miles south of Lumding, where the railway rises 451 feet in a distance of 9 miles. At the end of March 1938, the A. B. Railway had 204 locomotives with a total tractive effort of 3,109,897 lbs. and 5,314 freight cars. The total route mileage of the A. B. system is 1,305 miles; track mileage, 1,584 miles.

Minor Railways. Several small lines should be mentioned, if only for the sake of recording their existence. The Bengal-Dooars Railway operates 186 track miles of metre gauge line in the northernmost part of Bengal, starting from the metre gauge E. B. line at Lalmanirhat. The Darjeeling-Himalayan Railway operates 162 track miles of 2-ft. track in extreme northern Bengal and in the northeastern corner of Bihar. In southwestern Bengal there are nine scattered narrow gauge lines with a total track mileage of 340 miles. In Assam, finally, there are three tiny stretches of narrow gauge line.

Carrying Capacity.

The carrying capacity of the railroads serving northeastern India cannot be separated easily from the carrying capacity of all of the eastern half of India. The two largest freight-carrying railroads in India, the E. I. R. and the B. N. R., haul goods over the area from Calcutta to Delhi, (1,000 miles northwest of Calcutta) and from Calcutta to Nagpur (700 miles west of Calcutta). The E. I. R. carried 22,881,000 tons in 1937-38 (in terms of "tons originating"), while the B. N. R. carried 15,863,000 tons. Compared with these great systems, the E. B. and A. B. lines, whose services are confined to Bengal and Assam, are very small carriers. The broad gauge E. B. lines carried 2,217,000 tons in 1937-38 (in "tons originating"), the metre gauge E. B. lines only 1,119,000 tons, while the entire A. B. metre gauge system carried 1,044,000 tons.

Thirty percent of the locomotives now operating in India are over-age; none have been scrapped since 1939. India has requested 145 locomotives from abroad. Unless the equipment of the railway system of India can be maintained, an already serious situation will deteriorate further, to the detriment of the war effort.

Recent Developments.

Since the war began in September 1939, the Indian railways have steadily increased the quantity of goods carried. By the winter of 1941-42 they were reported to be carrying 25 percent more goods than in pre-war times. This was achieved despite the large quantities of rolling stock that had been sent to the Middle East, the withdrawal of many ships from the Indian Ocean that had thrown extra burdens on the railways, the large numbers of special troop trains and prisoner trains that had been run, rising war production in India which demanded the hauling of larger quantities of raw materials, and the fact that three railway workshops had been entirely turned over to munitions work. Northeastern India has been particularly hard hit by the conversion of railway workshops into munitions plants. The E. I. Railway workshop at Tatanagar is wholly engaged in war work; the great shop of the B. N. R. at Khargpur, the shops of the Assam-Bengal Railway at Kanchrapara, Entally and Saidpur, and those of the E. I. R. in Jamalpur, Howrah, and Lillooah are heavily engaged in war work. In addition, many railway and engineering workshops in the metropolitan area of Calcutta, the heart of the Indian engineering industry, are being utilized for war production.

However, American consular authorities in India, writing at the end of January 1942, doubted that the most complete utilization was being made of the existing railway rolling stock. Booming of passenger traffic had not yet been reduced to the point where it ceased to interfere with freight traffic, and improvements were still possible in the use and allocation of rolling stock, although substantial increases in tonnage could be made only by securing additional rolling stock.

In the spring of 1942, with the fall of Burma and the threat of Japanese invasion, the railway situation which had been serious became critical. For example, the chief source of supply of oil was lost with the fall of Burma and the port of Calcutta was temporarily closed; to supply the Calcutta district with petroleum products by rail from western India would require 1,650 tank cars--more than the total number of such cars in India. Congestion on the railways was aggravated by curtailment of sea traffic and the industries of the Calcutta area suffered great delays in securing raw materials, particularly coal, and in shipping their products. Coal represents 30 percent of the total goods traffic of India's railways. The Tata Iron and Steel Company, which attempts to keep a thirty-day supply of raw materials, reported that its coal reserves on April 1, 1942 were 129,000 tons for a 200,000 tons per month consumption and its reserves of limestone 2,400 tons for a 55,000 tons per month consumption. On the other hand, steel products which had been given high priority in production could not be shipped for lack of wagons and had to be piled up in the yards. In one case an urgent order was shipped to Calcutta, whence it was eventually returned to Tatanagar because Calcutta was unable to unload the wagons.

By the summer of 1942 the port of Calcutta was in use again, although not to its capacity. However, it will be necessary to plan for future disturbances. The air raids of December again affected the port, but it was reported to be operating at 60 percent of capacity a week later.

The use of the railways was interrupted by the political disturbances of the fall of 1942. Trains were derailed and stations were burnt, especially in Bihar. Bengal suffered less than Bihar and the United Provinces in this respect, but there was interruption of service to Bengal from western and northern India. In October a cyclone and tidal wave hit the coast southwest of Calcutta and disrupted the rail service around Midnapore. Three weeks were required for repairs. The Bengal-Nagpur Railway re-routed through Raipur, and manganese shipments to Vizagapatam were not affected.

It is of first importance that what bridges there are be kept intact. Tatanagar is on a spur of the Bengal-Nagpur Railway, and close to Jamshedpur this railway crosses two bridges over the Khorkai River, one on the Calcutta side and one on the Bombay side. The former is essential for the shipping of the product to Calcutta; the latter is essential for the receipt of half the coal and all the limestone, manganese, and dolomite used. Injury to either of these bridges would have grave consequences for the war production of India, especially since (as the Tata Company explains) the plant is so interconnected that part of it cannot be run separately from the rest. Similarly, the lines of the E. I. Railway from Patna cross the Hooghly River on the Willingdon Bridge at Bally just north of Calcutta. This bridge, which was opened in 1931, carries a double railway track and gives direct access to Kidderpore Docks. Damage to it would also have serious consequences for war transport.

The closing of the east coast ports made it necessary to carry export goods by rail to the west coast at the rate of 5 million tons per annum. At the same time military supplies for northeastern India had to be landed at Bombay and hauled 1,500 miles or more overland. By December 1942, the port of Calcutta was reported to be in almost normal use again. But the air raids at the end of December again interrupted shipping, though to a lesser extent.

In view of the increasing weight of the transportation problems, a commission was set up in Calcutta in March 1942 to deal with the traffic situation of Bengal and Assam. Besides a representative of the railways, this commission included representatives of inland steamship companies, the defense organization, and the government of Bengal.

Detailed information on the railroads of northeastern India is contained in Appendix VI.

35. Roads.

The chief physical handicaps to road building in India are rivers and rain. Both of these handicaps are especially great in northeastern India where the Ganges and Brahmaputra have innumerable branches and where the rainfall is the heaviest in India. The small streams are especially numerous in the area lying between the two great rivers. These streams create a secondary check to road building since they form themselves an alternative means of transport--a means, however, whose usefulness is limited by the monsoon conditions. Not only is road building difficult in this area, but the making of bridges is greatly complicated by the changing flow of water in the streams. Only a strenuous program with government encouragement could overcome these handicaps, but the policy of the government of India has, on the whole, been opposed to extensive road building on the ground that road transport might take traffic away from the state-owned railways.

As a result of all these factors, Bengal has fewer miles of surfaced roads than any other province in India except Sind, the North-West Frontier Province, Orissa, and Assam, and there are practically no bridges. It does have a comparatively good mileage of dirt roads, however. Assam is in a similar position, with only a few good roads in the north and none in the rest of the province. Road transport in northeastern India therefore is at present of negligible importance.

Table of Roads. The table which follows below shows the mileage of different types of roads. In summary, Bengal and Assam together have 7,384 miles of all-weather roads, 42,282 miles of fair-weather dirt roads, and 52,597 miles of dirt roads negotiable only by bullock carts. A general road map of northeastern India may be found in Appendix XI.

Road Mileage in Northeastern India

	Surfaced Roads		Unsurfaced Roads		
	Asphalt Tar, or Cement	Water-bound Macadam	Gravel	Natural Soil Motorable in Fair Weather	Natural Soil Unmotorable
Bengal	662	3,225	1,510	38,695	47,100
Assam	272	420	1,295	3,587	5,497
Total	934	3,645	2,805	42,282	52,597

Chief Roads. The chief highway in northeastern India is the "Grand Trunk Road" which runs down to Calcutta from Peshawar and Delhi, through Asansol, Raniganj and Burdwan. The section from Burdwan to Calcutta is poor. Even this highway is not bridged satisfactorily throughout since the San River must be crossed on the railway bridge in the rainy season, though in Calcutta the new Howrah bridge is about to be opened to traffic, and a floating bridge is being built over the Hooghly at Ulubaria, 15 miles south of Howrah. At the north end of Calcutta the Willingdon Bridge has an 18-foot roadway and an 8-foot footpath in each direction.

There is a trunk road from Madras to Calcutta, but from Cuttack to Calcutta it involves at least nine ferry crossings, since it runs fairly near the coast and is cut by many streams. Temporary bridges have recently been placed over the Baitarani, Brahmani, Birupa, and Mahanadi Rivers, but these have to be dismantled before the monsoon breaks.

From Midnapore the road branches northeast to Purulia. On this section bridges have been decked and approaches improved within the past year, and between Adra and Asansol a railroad bridge has been completed over the Damodar River. Bridges are being decked over the Rupnarayan and Kasai Rivers.

According to the Tata Iron and Steel Company, there is no direct road from Jamshedpur to Calcutta, a distance of 150 miles. Instead, traffic must go via Ranchi to the Grand Trunk Road at Dhanbad making the distance 400 miles. Even this road is not suitable for heavy traffic. A cut-off saving 100 miles has been made possible this year by improving a minor road and building a bridge over the Subarnarekha River at Jamshedpur, but the distance is still double that on a direct route and the road is not good. According to a government report, the road from Jamshedpur to Khargpur has just been improved by the decking of a railway bridge over the Subarnarekha at Ghatsila. It is apparent, nevertheless, that the roads in this important industrial area can do but little to relieve the over-crowding on the railways.

North of Calcutta. A good road runs northeast of Calcutta to Jessore, then north to Jhenida, then west through Chuadanga to Meherpur, a total distance of about 175 miles. A road from Burdwan which crosses the Hooghly at Kalna, joins the Calcutta-Jellore section at Bangaon. This road is being developed as a new line of communication. A pontoon bridge at Kalna is necessary and orders have been placed for material and barges.

From Meherpur a minor road ("fair-weather" dirt) runs north to the Ganges to a point opposite Rajshahi, an important calling place for river steamers. From it there is a road northeast to Rangpur and thence to Dhubri (Goalpara) on the Brahmaputra River. However, 42 miles of the first section are only fair-weather road. Some parts of a projected "North Bengal Highway," running from Calcutta to Siliguri (near Darjeeling) via Dinajpur, are now being improved. There is at present no good through highway either north-south or east-west in the heart of Bengal.

From Raniganj, on the Grand Trunk 128 miles northwest of Calcutta (near Asansol) there is a surfaced road running north to Bhagalpur on the Ganges. From there a fair-weather road continues east along the river to a point near Sakrigali Ghat where a ferry crosses the Ganges to Manihari Ghat. From Manihari Ghat there is an inferior road to Purnea, and from Purnea one proceeds via Jalpaiguri to Goalpara (Dhubri Ghat) on the Brahmaputra. Most of this road is fairly good, but there are a large number of unbridged streams.

East of Calcutta. There are a few short roads lying east and south of Dacca, one of them running from Dacca to Chittagong. Most of this is a fair-weather dirt road. The section between Comilla and Feni (Fenny) was recently improved and is capable of carrying military traffic except during heavy rains. No report has been received from a recent project for developing **roads** in the Chittagong area.

Assam has a first class trunk road which runs roughly parallel to the Brahmaputra River all the way from Goalpara to Saikhoa Ghat opposite Sadiya, a distance of about 350 miles. It passes through Nowgong, Jorhat and Dibrugarh. From Sadiya two roads lead into China. A branch of the main road runs down to Digboi and Ledo. Another branch runs from Gauhati on the south bank of the Brahmaputra to Shillong, capital of Assam, and then south to Sylhet in the Surma Valley. Both of these roads are now reported to be bridged throughout and are being brought up to Class 12 standard. There is also a first class road from Sylhet to Silchar. A road from Jorhat to Dimapur, recently shingled, now connects the Assam trunk road and Kokilamukh Ghat (on the Brahmaputra) with the first class Manipur road, but it needs further improvement. An alternative route to Dimapur is being developed from Nowgong through Lumding. These roads are south of the Brahmaputra;

north of the river there is a fair-weather road running across Assam from the Bengal border to a point opposite Dibrugarh, in the northeast corner of Assam.

Connections with Tibet and Burma. Northeast India is connected with Tibet and Burma by a number of trails. The best known of the trails from India to Tibet is that which runs from Gongtok to Lhasa via Gyantse; a telegraph line to Lhasa also goes by this route. Northeast India's connections with Burma are now being improved at a fast pace. An all-weather road has existed for some years from Dimapur or "Manipur Road," a station on the Assam-Bengal Railroad, to Imphal, capital of Manipur State, a distance of 135 miles. This road has a 12-ton load bridge capacity but suffers difficulties from land slides. From Imphal a fair-weather road which has been recently shingled continues 29 miles south to Palel. Formerly a bridle path continued for 35 miles to Tamu in Burma, but a road has now been cut and is partly shingled. At Tamu, the bridle path goes east to Sittaung on the Chindwin River, while a footpath runs south to Mawlaik. Thus a road capable of carrying military traffic from Nowgong or Jorhat to Dimapur, through Palel and Tamu, and ending at Kalewa, 150 miles from Imphal, is nearing completion.

A second route from India to Burma is also under construction. Following a long-advocated railway route, it will start at Ledo in northeast Assam, run over the Patkai Hills to Tagaplung Ga in Burma, thence to Myitkyina via Maingkwan, Shaduzup, and Mogaung. Construction is now beginning on this second route, the Hukawng Valley route. When completed, it will hook up with another road being built from Myitkyina to the Burma Road at Lungling in Yunnan.

In addition to these roads there are a number of minor trails from northeast India to Burma. From Chittagong a dirt road runs south via Dohazari to the Burmese border. Another dirt road runs east from

Chittagong to Lungleh in eastern Bengal, and continues as a path east across the Chin Hills to Kalewa on the Chindwin River. This trail has a number of minor trails branching off from it.

Road building. In India road building is a provincial function but the central government collaborates in major plans and makes contributions from the Central Road Development Fund for the construction of new roads. This fund is created from a share of the import excise duty on gasoline. In 1940 Bengal adopted a tax cf $1\frac{1}{2}$ annas per gallon on motor spirit, which was expected to yield Rs. 1,200,000 per annum for a provincial road fund. (Every other province except Orissa had already adopted a similar tax.) At the same time an extensive scheme of road building was drawn up, to cost Rs. 3,000,000 per annum. With the rationing of gasoline, receipts from the tax fell off, and war conditions generally hampered the program as a whole, although certain phases were pushed with greater energy.

Assam undertook a road program to be carried out from 1938 to 1945, at a cost of Rs. 3,300,000. Much of it has been completed.

Expenditures on all extra-municipal roads by these two provinces in 1938-39 were as follows:

	Original Works	Repairs	Total
Bengal	Rs. 4,290,000	5,330,000	9,620,000
Assam	440,000	2,750,000	3,190,000

Maintenance of roads is entirely a provincial responsibility. Roads in India are not built to carry heavy traffic and need frequent repairs. Since jurisdiction usually lies with local boards, there is great inequality in road conditions. Road building equipment is usually of a primitive sort, hundreds of coolies being substituted for machines. There are in Calcutta a few firms making bitumen boilers at an approximate rate of 50 per month.

However, the machinery that is used is almost entirely imported, most of it from England, though in the past few years there has been a notable increase in the use of American road graders.

Petroleum asphalt is the principal material demanded for road-making; it is bought in the United States, Mexico, and Egypt. Cement is also used, a commodity in the production of which India has become practically self-sufficient.

Bus Service. Bus service in northeast India is poorly developed. There are a number of small local lines, but very few long lines. The biggest of these seems to be the 62-mile route from Pandu (on the Brahmaputra near Gauhati) to Shillong, capital of Assam.

Number of Vehicles. The total number of motor vehicles of all types in northeast India on January 1, 1939 was 33,972, divided according to the following table:

Motor Vehicles in Northeast India

	Private Cars	Taxis	Buses	Lorries	Motor Cycles	Total
Bengal	19,990	see buses	1,725	3,376	1,155	28,375
Assam	3,078	238	846	1,226	209	5,597
Total	23,068	238	2,571	4,602	1,364	33,972

The extension of road communications and a more efficient road transport system is considered a vital element in India's war effort. Yet the import of motor vehicles for all but military use has been practically cut off by the war, and in addition gasoline is strictly rationed. The government of India requested a loan of forty lorries from the Tata company, but unfortunately, neither Tata's nor anyone else has vehicles to spare in India.

Repair Facilities. Motor car repair facilities are at best meager. At the end of 1938 there were in all Bengal only 18 "coach building and motor car repairing" shops, which employed 1,920 workmen. All of these were in Calcutta and its immediate environs. In Assam, at the end of 1937, there was a total of 277 workmen employed in car repairing, chiefly in Lakhimpur District and at Shillong. No information is at hand on garage facilities.

Fuel. Production figures for the oil field and refinery at Digboi, Assam, have been given in paragraph 32. The location of gasoline stations--**including stations** with pumps and places where gasoline is available only in cans--is shown in the Road Map of India for 1939, published by the Surveyor General of India.

Experiments are being carried on for the making of alcohol for motor fuel from molasses, and many vehicles have already been converted to the use of producer gas, although in December 1942 a government order prohibited the use of kerosene as a motor fuel.

River Transport. River transport in northeast India is well-developed and of long standing. River steamers of the India General Navigation and Railway Company run up the Ganges from Goalundo Ghat in Bengal through Bihar to Buxar at the western edge of that province; the Assam Sunderbuns Despatch Service runs from Calcutta via the Sunderbuns to Goalundo Ghat, and from Goalundo Ghat all the way up the Brahmaputra to Dibrugarh in northeast Assam; the Cachar-Sunderbuns Despatch Service runs from Calcutta to Chandpur, Narayaganj (near Dacca) and then up the Meghna and Barak Rivers to Silchar in eastern Assam; while the India General Navigation and Railway Company runs from Narayanganj up the Meghna and Surma Rivers to Sylhet in the center of Assam. There are also a large number of local branch services, a great many ferries, and innumerable small boats owned by private parties and business concerns. During the rainy season, in fact, river transport is often the only practicable means of carrying goods and persons.

Precise information on the number of vessels plying the rivers of northeast India is difficult to obtain. The region abounds in launches, barges, and country boats of all types. So far as the large companies are concerned, the India General Navigation and Railway Company alone is reported to operate 678 vessels, most of which are probably small craft.

Attempts are being made to increase the use of rivers in transport. For example, at Nimtita, near Barharwa, a spur has been built from the E.I.R. main line to the Ganges River, a distance of two miles. There are storage yards at Nimtita. Seventy steamers and 250 flats are available for the transport of goods to Dibrugarh, near the China border. There is a good loading site at Dibrugarh.

The use of the rivers for military transport has increased the difficulties of the civilian shippers, as for example of the jute dealers. A priority system prevails. There is talk of pooling all shipping facilities (railway cars have been in a common pool for some time.) As things now are, the shortage of tugs has left flats lying loaded up-country, waiting to be towed to Calcutta. As a result of the military situation, river traffic has been stopped for a distance of about 50 miles from the coast and all water craft ordered out of this area. Registered boats (carrying ten or more passengers) can be controlled, but it will be very difficult to enforce the orders against unregistered boats. Motor vehicles, bicycles, and elephants are also being removed. Compensation is being offered, and efforts are made not to antagonize the people. However, compensation is inadequate, and there are many complaints.

Repair facilities for river craft are confined to four towns. Calcutta has patent slips and drydocks which can accommodate 13 river steamers at once; they are owned by the Port Commissioners of Calcutta, the Hooghly Docking and Engineering Company, the India General Navigation and Railway Company, and the Garden Reach Workshops. Chittagong has one slipway, owned by the Port Commissioners, which can repair river steamers up to 150 tons in size. At Narayanganj, the port for Dacca, the India General Navigation and Railway Company maintains facilities for repairing river steamers. River steamers workshops are said to be located at Fenchuganj, on the Barak River in the Sylhet District of Assam.

36. Shipping.

Calcutta.

In normal times, Calcutta handles between 8,000,000 and 9,000,000 tons of cargo annually, including goods loaded and unloaded at the docks, at the jetties, and in the stream. Total tonnage for 1939-40 was 9,966,000 tons (valued at Rs. 1.3 billions); for the calenda year 1941, 9,000,000 tons. The net registered tonnage of commercial ships entering in 1941 was 7,700,000 tons. Calcutta is a well-equipped port, offering modern wharfage, good repair facilities, and abundant fuel and supplies.

Approach. Calcutta lies on the Hooghly River, one of the most important channels of the Ganges as it enters the Bay of Bengal. Pilotage is necessary from Eastern Light, about 122 miles from Calcutta, though for all practical purposes Calcutta lies about 83 miles from the sea. It would serve no purpose to describe the channels, for changes are frequent and often drastic. From June to October the Hooghly is high, and during this period vessels drawing 28 ft. can reach the port at high water springs. In exceptional circumstances, they would have to wait a maximum of six days. From October to June, when the river is low, the maximum draft is 26 ft. Vessels drawing over 29 ft. can be taken up the river, but not without first consulting the port office for advice and instructions.

The Port of Calcutta extends from Budge-Budge, about 21 miles above Hooghly Point, to Konnagar, almost 23 miles farther north, the limits being marked by pillars.

Accommodation. Vessels of 15,000 tons can readily ascend to the city, where there is jetty and mooring accommodation. Moorings in the stream are laid down for 75 ocean-going vessels. Much of the trade of the port is handled at the moorings. The great numbers of lighters employed in this traffic are berthed at the Inland Vessels Wharves, stretching for miles along the river. Most of the Inland Vessels Wharves have rail connection with the Indian broad gauge railway.

While Calcutta offers extensive facilities for docking and unloading, her berthages are completely exposed to air attack. The principal wharves are located in enclosed basins, to which access is given through narrow channels. The destruction of a ship or bridge in one or all of the channels would seriously impair Calcutta's vital functioning as a port of entry.

Wharves offering berthage to ocean-going vessels, with their respective unloading and storage facilities, are as follows:

(1) Kidderpore Docks. These docks are approached through a basin entered from the Hooghly River by two lock entrances, one 60 ft. wide and the other 80 ft. wide, pointing upstream at an angle of about 20 degrees with the flood tide. These gates are hydraulically worked. From the basin, entrance is given at the south end by a double passage to Wet Dock No. 1, which is connected by a single passage with Wet Dock No. 2. The dimensions of the new 80 ft. entrance lock are as follows:

Length of lock between gates		580 ft.
Width of lock		80 ft.
Depth of water over entrance sills at mean	(high water)	34 ft.
	(low water)	23 ft.

The Kidderpore Tidal Basin is 600 ft. long by 680 ft. wide, and has an area of 9½ acres. One berth 480 ft. in length is provided. It is fitted with five 35-cwt. hydraulic non-luffing cranes. There is one similar crane at each end of the shed and six 35-cwt. hydraulic cranes on rear of shed roof.

The wet docks of Kidderpore are as follows:

Dock No. 1:

Width of entrances to Tidal Basin	60 & 80 ft.
Length	2,700 ft.
Width	600 ft.
Depth alongside	30 ft.
Water area	33.8 acres
Quayage	5,400 ft.

Twelve ships can be berthed simultaneously, six on the east quay and six on the west quay. The east quay is 2,500 ft. long and is equipped with 23 35-cwt. and five 5-ton hydraulic traveling cranes. The west quay is 2,200 ft. long and is equipped with 29 30-cwt. and two 5-ton hydraulic cranes. There is also a sheer-legs to lift one hundred tons. Each quay has six single-floor warehouses on the water front and one at the rear; the total area is 542,500 sq. ft. Both quays are **rail**-served on the waterside of sheds and also in the rear.

Dock No. 2:

Width of entrance from Dock 1	80 ft.
Length	4,500 ft.
Average width	400 ft.
Depth alongside	30 ft.
Water area	49.4 acres
Quayage (east side--9 berths)	4,320 ft.
(west side--6 berths)	2,616 ft.

There are five cargo berths along the east side. The remainder as well as the whole west side are used for coaling. Timber pile piers are built out into the dock.

The five berths on the east quay are served by 26 35-cwt. hydraulic traveling cranes; the rear of the sheds is also served with 21 35-cwt. electric roof cranes. There is no lifting equipment in the open storage section. The south portion of the west quay is equipped with ten 8-ton hydraulic luffing traveling cranes and two of the coal berths have mechanical appliances for loading. There is no equipment on the north portion. The sheds are rail-served at the rear; the open storage space is rail-served. Each of the five cargo berths has a two-story shed; the total floor area is 492,400 sq. ft. The remainder of the quays is open storage ground, the entire length of the west quay being used for coal dumps.

In the Kidderpore Dock area there are also 35 sheds, with an area of 1,041,004 sq. ft., for the storage of wheat and seeds; two double-story sheds on the river bank where tea is received from inland vessels pending shipment; and a four-story warehouse, 670 ft. by 120 ft., ordinarily used for the sale of tea. There is a second four-story warehouse, 600 ft. by 120 ft. The export trade in hides and skins is provided with 357,595 sq. ft. of warehouses, with drying grounds attached, the total area occupied being 25 acres.

Water, electricity, telephones, and office accommodation are available at both Docks 1 and 2.

Water level in the docks is maintained by pumping higher than the level of high water in the river. Any damage to the pumping apparatus through sabotage would, therefore, seriously impair the usefulness of these excellent facilities.

The docks are in railway communication with the jetties and the Indian broad gauge railways.

(2) King George's Dock. King George's Dock, which is only partly completed, provides at present three import berths, one export berth, one berth for inland steamers. The water depth is 33 ft.

The dock is entered from the Hooghly River by a lock 700 x 90 ft. with its sill at 22 ft. level below datum, or 37 ft. below mean high water. In addition there are constructed in tandem two dry docks which, in emergency, may be used as a second lock.

Dock Basin:

Width of entrance	90 ft.
Length	2,300 ft.
Width	800 ft.
Depth of water	36 ft.
Water area	42 acres
Quayage	4,724 ft.

Berth no. 1 is 800 ft. long and has open storage only. It has no cranes. It is used for railing heavy lifts by floating cranes.

Berths no. 2 and 3 are each 520 ft. long and berth no. 4 is 530 ft. long. Each of these has a three-floor warehouse with covered and open storage at sides and rear. "A" shed (the fifth berth) is 520 ft. long and has a two-floor warehouse. The total area of the sheds is 759,690 sq. ft. Each shed has 2-ton electric elevators, numbering 43 in all. There is also a four-story warehouse with a total floor area of 147,232 sq. ft. equipped with ten 2-ton electric elevators. Berths 2 and 4 and "A" shed have six 2-ton electric luffing and traveling cranes each.

A berth for the import of non-dangerous petroleum is provided for vessels drawing up to 30 ft. Land for bulk storage is available a mile from the berth. In 1940, 14 tanks with a total storage capacity of 15,327,000 gallons had been constructed by various companies. Each berth is served by rail, both on the waterside and at the rear. The dock railway system is in communication with the rest of the port and with the Indian Railways. Water, electricity, and telephones are available.

(3) Riverside Berths, Calcutta. There are nine riverside berths totaling 4,743 ft. besides one small berth for heavy lifts which is old and constructed of steel piles. Depth alongside at lowest low water for four berths is 28 ft., for one berth is 26 ft., and for another is 24 ft., maintained by dredging. Each berth has a concrete surface with the exception of nos. 5 and 6, which are timber decked. Berths 1 and 9 have a shallow draft and are suitable only for river craft. No. 4 has no quay and is out of commission. The berths are only suitable for general cargo and would not take the weight of heavy lifts.

Berth	Length	Warehouse	-	Space
No. 1	390 ft.	single floor	-	
No. 2	500 ft.	two-floor	-	99,000 sq. ft.
No. 3	440 ft.	single floor	-	41,400 " "
No. 5	480 ft.	" "	-	77,000 " "
No. 6	430 ft.	" "	-	44,800 " "
No. 7	510 ft.	two-floor	-	111,600 " "
No. 8	530 ft.	" "	-	109,124 " "
No. 9	480 ft.	single floor	-	

There is also a parallel line of warehouses at the rear. Nos. 2, 7, and 8 are equipped with internal and external 2-ton hydraulic elevators.

In all, the following cranes are available at the Calcutta jetties:

59 hydraulic cranes to lift 35 cwt.
3 floating cranes to lift 60, 30, and 20 tons respectively
2 electric cranes to lift one ton
7 electric cranes to lift 35 cwt.
1 electric "Goliath" cantilever crane
1 electric traveling crane to lift 10 tons
1 electric traveling crane to lift 5 tons

Berths 1, 2, and 3 have 18 35-cwt. hydraulic cranes. Berths 5, 6, 7, 8, and 9 have 31 35-cwt. hydraulic cranes and one 30-cwt. electric crane. The heavy lift wharf has one 30-ton and one 10-ton electric transporting crane.

Both rows of warehouses are rail-served, but there are no rails on the waterside. The rail connections are with the Kidderpore Docks and with the Indian broad gauge railroads.

Water, electricity, and telephones are available.

(4) Riverside Berths, Garden Reach. There are five Riverside Berths at Garden Reach, comprising a total quay length of 2,947 ft. One is a coaling berth, the remainder are produce berths. Their depth alongside is 30 ft. at lowest low water.

The four produce berths are provided with two-story sheds having a combined floor area of approximately 700,000 sq. ft., and accommodating about 70,000 tons of merchandise. The berths are equipped with 23 2-ton electric luffing cranes; traveling is restricted to length of quay. There are also cranes at rear of sheds and sheds III and IV have additional end cranes, yard cranes, and trolley lines facilitating easy removal of heavy material from the quay front to the stacking areas behind sheds. In all, berths no. 1, 2, and 4 have ten cranes each, and berth no. 3 has eleven. Sheds III and IV are also equipped with six electric goods elevators each.

The four produce sheds have railway sidings to the rear. Exits from berths are poor, and there is only one road leading from the jetties. Water, electricity, and telephones are available.

(5) Outram Ghat. This is a floating pontoon about 420 ft. long, connected with the shore by four ramps each 10 ft. wide. It is used for passenger landings, and has a two-story building for waiting rooms, etc. It is timber decked. There are mooring bollards but no landing equipment. With alterations it could be used for discharge of ammunition.

(6) Moorings at Calcutta. Moorings are laid in the Hooghly River for the accommodation of 71 vessels, and much of the trade

is dealt with there. The lighters which carry this cargo are accommodated at the Inland Water Wharves which line both banks of the river for miles.

(7) Budge-Budge, operated by the Port Commissioners, provides facilities for both dangerous and non-dangerous petroleum. It is 12 miles down the river from Calcutta. There are eight pontoons connected with the shore by narrow ramps to afford facilities to vessels bringing either case or bulk oil. There are two oil fuel berths. Storage and factory sheds as well as storage tanks are arranged so as to minimize fire risk. The depot has 297,684 sq. ft. of covered area for storage in tins and a tank storage capacity of 30,252,077 gallons in bulk. There is a jetty for the discharge of bulk petroleum steamers.

Summary of Capacity. The following numbers of ships can be berthed simultaneously, including waiting berths:

In Kidderpore Docks - 30 ships
In King George's Docks - 9 "
In Calcutta Jetties - 5 "
In Garden Reach Jetties - 5 "
In the stream - 44 "

Dry Docks and Slips. (See Appendix VII for dimensions etc.)

Kidderpore Dry Docks 1, 2, and 3 belong to the Port Commissioners. They are not affected by the tides since they are entered from the Basin in which the normal level of water is 21 ft. 3 in. above datum or 24 ft. 3 in. over keel blocks. These can be increased 12 in. by pumping. Dock no. 1 has a ship caisson at entrance; sill is level; breadth of dock at top of blocks is 63 ft.; keel blocks are cast iron with 2 in. salwood cap pieces. Dock can be pumped out in about 3 hours.

Dock no. 2 has a ship caisson at entrance; sill is level; breadth of dock at top of blocks is 63 ft.; dock can be pumped out in 2 1/4 to 2 3/4 hours. A 5-ton hand crane is situated between Docks no. 1 and 2.

Dock no. 3 has a level sill; the breadth at the top of the blocks is 50 ft.; the dock can be pumped out in 1½ hours.

The entrance lock measures 580 ft. between the gates and is 80 ft. wide.

The Island Graving Dock for small craft, also owned by the Port Commissioners, is entered from the Basin, with gates at the entrance. Breadth of the floor is 38 ft. 3 in. The dock can be pumped out in 3½ hours. There is also a patent slip which can take vessels up to 105 ft. by 120 tons. The cradle is constructed of wood; the top of the blocks is parallel to the slope of the slip. The Kidderpore North Workshop of the Port Commissioners (off the Basin) has a slipway 190 ft. long, with no cradle. Vessels up to 100 by 40 by 7 ft. by 111 tons can be taken.

King George's Graving Docks nos. 1 and 2, belonging to the Port Commissioners, are designed to be entered from either the river or the wet dock. The river entrance is temporarily closed. The entrance is now from the Basin in which the water level is maintained at 15 ft. above chart datum. The two docks are normally partitioned off by a box caisson. By removing the caisson the two docks can be used as one. The entrance lock is 700 ft. long and 90 ft. wide.

Garden Reach Workshops has two dry docks and five patent slips. The docks are entered from tidal waters, with gates at the entrance. Dock no. 1 has a breadth of 46 ft. at top of blocks; side blocks are fitted for a length of 415 ft., 11 ft. from the center of the dock. Dock no. 2 has a breadth of 46 ft. 2 in. at top of blocks; side blocks are fitted for a length of 300 ft. 6 in., at a distance of 11 ft. 3 in. from the center of the dock. These docks are suitable for light river craft only.

Patent slip no. 1 is 364 ft. 2 in. long; the wooden cradle is 48 ft. 4 in. long and 9 ft. 3 in. wide. Only small launches can be accommodated.

Patent slip no. 2 is 600 ft. long; the wooden cradle is 233 ft. 6 in. long and 30 ft. wide. The slip is fitted with transverse carriage and two side berths with accommodation for three vessels. Berths are 260 ft. and 200 ft. long and 68 ft. and 40 ft. wide respectively. Vessels 230 ft. by 28 ft. have been taken.

Patent slip no. 3 is 640 ft. long; the wooden cradle is 244 ft. 3 in. long and 31 ft. 10 in. wide. The slip is fitted with two transverse slips 260 ft. long and 51 ft. wide. A vessel 255 ft. by 36 ft. has been taken. There **is** a 6-ton and a 12-ton crane.

Patent slip no. 4 is 739 ft. long; the steel cradle is 312 ft. long and 34 ft. 3 in. wide. This slip is fitted with two transverse slips, 320 ft. long and 60 ft. wide. A vessel 300 ft. by 42 ft. has been taken.

Patent slip no. 5 is 320 ft. long; the steel cradle is 54 ft. 9 in. long and 11 ft. 3 in. wide. There are facilities for traversing cargo boats to either side if necessary.

India General Navigation and Railway Company, Ltd., has three dry docks and two patent slips. The dry docks are all entered from tidal waters and have steel gates at the entrance. The East Dry Dock is 42 ft. 9 in. in breadth at the top of the blocks, the New Dry Dock is 50 ft. 4 in., and the West Dry Dock is 50 ft. 2 in. Side blocks are fitted for a length of 578 ft. at 11 ft. from the center, 582 ft. at 10 ft. from the center, and 287 ft. at 11 ft. from the center, respectively. These docks are used for company ships only.

The patent slip on the west side of the dockyard has taken vessels up to 250 by 36 by 9½ ft. The slip on the east side has taken vessels up to 210 ft.

Hooghly Docking and Engineering Company, Ltd. owns the Hooghly Dry Dock which is entered from tidal waters, with gates at the entrance. Breadth of dock at top of blocks is 44 ft. 3 in.; no side blocks are fitted. There is a 10-ton electric traveling crane.

Fuel Supplies. Fuel oil is supplied either from a pipe line on one of the wharves or from barges in the port. Oil bunkering would be **possible** from tankers in the stream, but actually this is not practised. Fuel barges belong to the oil companies. There are 26 available, varying in capacity from 45 to 150 tons, and totaling 2,840 tons. The rate of bunkering is 50 tons per hour from barges, 75 to 80 tons per hour through pipe lines. Oil bunkering while ships are discharging is subject to port rules.

Bunker coal can be taken overside in the Kidderpore Docks at no. 17 berth, at Garden Reach Jetties at no. 4 berth, and at King George's Dock at no. 4 berth. All coaling berths are served by rail and lighter. The rate of bunkering coal is 45 tons per hour overside or 50 tons per hour from wharf.

Water and Provisions. Drinking water is supplied by the Superintendent, Water Supply and Shipping, Calcutta Corporation. Two barges of 73 tons capacity are used in Kidderpore Docks and 3 steam water boats of 100 tons capacity are used in the stream. The rate of supply is 50 tons per hour. In Kidderpore Docks, Garden Reach Jetties, and "B" berth of King George's Dock, drinking and boiler water is supplied overside from the boats. Unfiltered water is pumped from the river by ships' own pumps. At King George's Dock drinking water is supplied to ships from hydrants on the quays. At Budge-Budge water is supplied to vessels while fueling.

Provisions are normally obtainable in the following kinds and amounts: frozen beef, 20,000 lbs. and frozen mutton, 15,000 lbs.

available on two days' notice, throughout the year; bread-making flour in any quantity throughout the year; potatoes, 44,000 lbs. and onions, 44,000 lbs. available from November to April. Also 20,000 eggs, 5,000 cabbages, 500,000 oranges, 2,000 bunches of bananas, 16,000 bunches of carrots, 16,000 bunches of turnips, 8,000 heads of lettuce are obtainable from November to April. From May to October only half these quantities are available. For most of these three to seven days' notice is required.

Cold storage is provided by the Calcutta Cold Storage Company which has 200,000 cu. ft. for 2,000 tons, to be increased by 500 tons; the British India Steam Navigation Company, which has 80-ton chanbers; and the Lightfoot Refrigeration Company, which is unreliable.

Stevedores. Under ordinary circumstances the Port of Calcutta is amply provided with stevedores (see Appendix VIII for list of stevedore companies). However, when Calcutta was threatened by the Japanese in the spring of 1942, there was a general exodus from the city. In the air raids of December 1942, many dock workers left. Precautions are necessary to prevent panic and to provide as much security as possible. Most of the stevedores are Bengalis and would presumably return to Calcutta quickly, once the danger from attack is removed.

The labor situation was reported good in August 1942.

Lighters, tugs, etc. There are two 100-ton lighters and three 150-ton lighters owned by the Port Commissioners. There are 2,500 80 to 90-ton steel barges and 5,000 country boats and wooden barges of 30 to 60-ton capacity privately owned.

There are seven dock and river tugs, and three sea-going tugs in addition; one of the latter was reported lost in the late spring of 1942.

There is a salvage tug of 2,200 h.p. equipped with fire-fighting apparatus and towing gear. It has an operating radius of 1,150 miles and is usable for sea work.

There is one 20-ton pontoon crane, the "Samson," a 30-ton steam self-propelling crane, and the "Atlas," a two jib 60 and 20-ton steam self-propelling crane.

Fire Protection and Explosives. There is a considerable amount of fire-fighting apparatus at the various docks and sheds and a number of firemen and watchmen. Hydraulic pressure is available 24 hours at the docks.

No berths are available for unloading explosives. These are handled either at Diamond Harbor or Moyapore in power boats belonging to the Port Commissioners. For dangerous cargoes the following facilities are provided: hazardous godown, 2,000 sq. ft.; fireworks, 2,000 sq. ft.; Moyapore explosive depot, 4,020 sq. ft.

Shipbuilding and Repair. Three marine engineering firms, Garden Reach Workshops, Commissioners of the Port of Calcutta, and the Hooghly Docking and Engineering Company, have well-equipped workshops and can make extensive repairs to ships. Smaller repairs can be made by the Shalimar Works, Ltd., the India General Navigation and Railway Company, Ltd., and the Port Engineering Works. There are facilities for constructing ships up to 12,000 tons. The shipping industry of Calcutta has developed a pool of skilled workers.

Recent Situation. The Port of Calcutta was virtually closed in April 1942 as a result of Japanese activity. The port was reopened gradually, but it was not entered by American ships until July. By that time ships were entering at the rate of 69 per month, compared with 100 per month before April. However, only old vessels were assigned to this port. It was reported that on July 15 there were 29 merchant vessels in port, 5 of them in dry dock and 3 others undergoing repairs. Late in August there were 33 merchant ships in port, 14 of them undergoing repairs.

The Japanese air raids on Calcutta in December 1942 caused a large exodus of workers from the port. The effect promised to be temporary; a week later the port was reported to be working at 60 percent of capacity.

Chittagong.

Chittagong with a population of 53,000 is the second port of Bengal and lies on the Karnaphuli River about 9 miles from the sea.

Approaches. An outer and two inner bars block the entrance to the river. The depth of these bars varies with the seasons, although new training works have permanently improved the outer and middle island inner bars. Navigation is now governed by the condition of Gupta Crossing Bar which, in 1935, had a depth of about 15 ft. on the range line. Gupta is still in process of improvement. Dredging is resorted to when necessary. Vessels of 23 to 26 ft. can be accommodated at high water on the higher tide of the day.

From September to March night tides are higher than day tides. To take advantage of this, pilots were in the past available for night pilotage. This service was discontinued some months ago, but can be resumed.

Anchorage. Vessels can anchor temporarily in certain reaches of the river on their way to or from Chittagong. However, swinging room is available only at or near high water, and then only with the assistance of the engines.

Accommodation. There are four berths for ocean-going vessels; two are for vessels 600 ft. over-all length, one for vessels 450 ft., and one for vessels 380 ft. Normal depth at the jetties is 25 ft. For oil tankers there are two berths with pipes.

Berth no. 1 has three 35-cwt. hydraulic cranes, berths 2 and 3 have four such cranes each, and berth no. 4 has six. In addition, each berth has a crane of 5-ton capacity at full rake or 10-tons at half rake. Cranes can be moved among berths 1, 2, and 3 which are continuous.

There is a special ramp for unloading horses.

In the stream there are two sets of moorings: one 500 ft. apart to take vessels 420 ft. long; one 420 ft. apart to take vessels 360 ft. long.

There are four transit sheds of approximately 150,000 sq. ft. floor space, and three storage sheds of 94,100 sq. ft. All sheds have corrugated iron roofs and concrete floors, coatings, Grosnell sprinklers, and fire extinguishers.

The transit sheds are entered by railroad spurs from the main Assam-Bengal Railway system. Railway cars can be loaded direct from the ships.

There is no lighterage; all cargo is loaded and discahrged at the wharves.

The Port Commissioners operate one slipway 215 ft. long.

Supplies. About 10,000 tons of coal are imported annually. Bunker coal is obtainable.

A supply of fuel oil is available.

Fresh provisions, water, and ship chandler's stores are available.

Recent Situation. Chittagong port is virtually out of use for ocean shipping as a result of Japanese military activities.

The following figures give the total shipping of the ports of Calcutta and Chittagong in 1938-39:

	Calcutta		Chittagong	
	No.	Tonnage (000's)	No.	Tonnage (000's)
Steamers				
British	2,010	6,795	347	909
British Indian	325	278	1	
Foreign	607	2,212	10	32
Sailing vessels	6	1	407	9
Total	2,948	9,286	765	950

37. Commercial Aviation.

a. Air Lines.

Air facilities in Bengal and Assam, like those of India in general, are quite undeveloped. There is no regular commercial service within Bengal. Calcutta has been a main station on British Airways' and KLM's services to the Far East. Since the outbreak of the Japanese War, KLM has ceased operations. Calcutta is now the terminus of two air lines: British Airways and Indian National Airways, both of which connect northeastern with northwestern India, and offer a weekly airmail and passenger service. Indian National Airways also maintain a few aircraft for chartering.

There has recently been an expansion of ground organizations in India, representing an effort to link Calcutta with Bombay and with Madras. The present state of these plans for expansion is not known.

b. Air Fields.

Following are the principle air fields of the region, as of 1939. (The information here given constitutes at best an outline of Bengal's facilities, and must be checked against information available to A-2.)

1. Dum-Dum Field (Calcutta.) 22° 35' N -- 88° 27' E. Teleg. "Aero-Dum-Dum." Radio. Hangars. Repair facilities.

   Runways: 800 X 50, 675 X 50, 675 X 50 yds.

   Altitude: 14 ft. Ground is likely to be flooded, June to October.

   Location: 8 miles NE of Calcutta on East edge of Dum-Dum.

2. Maidan Field (Calcutta, Military.) 22° 35' N -- 88° 21' E.

   Runways: 532 X 468 yds.

Altitude: 10 ft.

Location: 400 yds. SW of Fort William.

3. Chittagong. 22° 16' N., 91°49' E. Teleg. "Aerodrome-Chittagong."

Runways: 675 yds. N.S.; 800 E-W; 775 yds. NE-SW; 775 yds. NW-SE.

Refueling: Burmah Oil Co.

Repairs: Chittagong Railway and Port Workshops.

Altitude: 12 ft.

Location: 6 miles SW of Chittagong.

4. Dacca. (Military auxiliary field.) 23° 43' N.-- 90° 26' E.

Dimensions: 567 X 250 yds.

Altitude: 10 ft.

Location: 3 miles NW of Dacca.

5. Berhampore. 24° 06' N - 88° 15' E. Repairs.

Dimensions: 575 X 730 yds.

Altitude: 55 ft.

Location: On old race course, alongside Berhampore Railway Station.

6. Maheshganj. (Private, auxiliary.) 23° 25' N -- 88° 25' E.

Owner: Mr. Pal Choudhiri.

Dimensions: 590 X 280 yds.

Altitude: 20 ft.

Location: 6 miles NW of Krishnagar, between the Krishnagar-Nabadwip Road and R.R. on the South, and the Jilangi Road on the North.

7. Asansol. (Military.) 23° 39' N -- 87° 04' E. Repairs.

Dimensions: 188 X 500 yds.

Altitude: 300 ft.

Location: South of Grand Trunk Road; 4 miles ESE of Asansol.

8. An airfield has recently been completed at Sadiya in northeast Assam, and at one time there was service from Calcutta to Shillong, Gauhati, and Dibrugarh in Assam.

38. Commerce.

Before the war, the chief exports from northeast India, in terms of value, were jute (both raw and cloth) and tea. The tea and the raw jute went chiefly to Great Britain; jute cloth went to the United States in great quantity, and to Argentina, Great Britain, and other countries. Pig iron and iron ore from Eastern Bihar went largely to Japan. In 1938, 1.3 million tons of coal were exported through Calcutta to foreign countries, principally Burma and Ceylon; 0.6 million tons were shipped by sea to other Indian ports and a similar amount used for bunkering at Calcutta.

The principal imports of northeast India in 1939 were machinery and millwork, kerosene, gasoline, and fuel oil, salt, and non-ferrous metals. Machinery and millwork came principally from Great Britain, kerosene and gasoline from Burma, fuel oil from Iran, salt from Aden and Egypt (large quantities also by coastal trade from western India), and strategic metals from Burma.

During the war, increasing American and British demand for jute partly compensated for the loss of the markets of continental Europe. The break of trade relations with Japan in the summer of 1941 caused northeast India to depend still more heavily upon trade with Great Britain and the United States. But the volume of commerce of northeast India had not seriously declined before December 1941.

Imports and exports through the port of Calcutta during 1940-41 were as follows:

Imports	Tons
petroleum	472,475
salt	442,579
sugar, rice, seeds, wheat, etc. in bags	342,708
iron, steel galvanized sheets	72,402
cotton piece goods in bales	42,857
machinery	59,436
timber	82,843
other goods	807,549
	2,322,849

Exports	Tons
coal, incl. bunker coal	2,564,097
ores	146,881
pig iron	548,542
gunnies	1,930,883
jute	214,206
rice, seeds, etc. in bags	238,594
tea	96,232
other goods	685,614
	5,425,049

(A more detailed table of imports and exports for the year 1938-9 is given in Appendix IX.)

In the spring of 1942 the Bay of Bengal was practically closed to Indian shipping, and the port of Chittagong is still (December 1942) out of use. It became necessary to move goods for export as well as coal for Indian consumption to the west coast ports by rail. As it was impossible to expand the capacity of the railroads quickly, the only way to maintain the trade of Bengal was to reopen the port of Calcutta. That has now been largely accomplished.

India normally imports the major part of her kerosene and gasoline from Burma, and of her fuel oils from Iran. The former enter by the port of Calcutta. The occupation of Burma by the Japanese cut off this important source of supply, and it became necessary to turn to other fields. Bahrein Islands are a substitute source. While the port of Calcutta was closed to shipping these supplies had to be landed at Bombay or Karachi and shipped overland.

39. Communications.

a. Telephone. India's telephone systems are operated by the government and by licensed private companies. The government maintains an extensive system of trunk lines, by which it is possible to communicate from one end of the country to the other--from Karachi to Calcutta, from Peshawar to Colombo. For a fairly exorbitant fee, private persons may subscribe to the government service and may use the same telephone for calls over either system.

Bengal and Assam. In 1938-39 telephones in Bengal and Assam totaled 25,209:

Telephones from government exchanges	3,705
Telephones from licensed companies' exchanges	20,421
Telephones from non-exchange systems (for private use on plantations and large estates)	1,083
Total	25,209

Six major trunk lines connect Calcutta with every important town or city in Bengal, Assam, and the rest of India. They lead to Madras, via Cuttack and Bezwada; to Bombay, via Nagpur and Bhusaval; to Jamshedpur; to Delhi, Karachi, and Peshawar, via Asansol and Benares; to Darjeeling and Kalimpong, with an eastward branch which connects with Gauhati, Shillong, Sylhet, and Silchar; and to Dacca and Chittagong, with branches to Narayanganj and Mymensingh.

In northeastern Assam a separate trunk circuit links Jorhat, Dibrugarh, Khanjikoa, Doom Dooma, Tinsukia, and Hugrijan with a line under construction from Mariani, via Manipur Road, to the main system at Gauhati. There is at present only one trunk line between the twelve exchanges in Assam and the rest of India. The government of India is planning to install a second trunk circuit between Saidpur and Gauhati, and between Saidpur and Calcutta. (For map showing existing trunk circuits in India, see Appendix X a.)

b. Telegraph. There is an excellent telegraph system in India, under the jurisdiction of the Posts and Telegraphs Department, which maintains connections with nearly every city and town throughout the country. (For map of main circuits see Appendix X b.)

From Calcutta land telegraph lines extend in five directions to maintain connections with:

1. Rangoon and the Malay Peninsula via Chittagong; China, via Bhamo in northern Burma.
2. Lhasa in Tibet, via Darjeeling and Gyantse.
3. Peshawar, Quetta, and Karachi, via Delhi.
4. Bombay.
5. Madras and Colombo.

c. Cable. There are no cable connections based at Calcutta.

d. Radio. Broadcasting is controlled by the All-India Radio, a department of the government which is headed by a Controller of Broadcasting. In May 1940 All-India broadcasting facilities in Bengal and Assam were as follows:

Station	Power in K.W.	Call Sign	Frequency in Kc/s	Wave Length Metres
Calcutta (1)	M.W. 1.5	VUC	810	370.4
(2)	S.W. 10	VUC 2	9530	31.48
Dacca	M.W. 5	VUY	1167	257.1

Late in 1941, the Calcutta stations were also broadcasting on the following frequencies and wave lengths:

Kc/s	Metres
7210	41.61
4840	61.98
3305	90.77

In April 1942 a radio relay transmission station was established at Jamshedpur. It has three 50-watt Philips amplifiers, an electric gramaphone turntable, a radio set, a microphone, nine loud-speakers in various parts of the town, and a mixing panel.

Wireless Stations. Of the 33 departmental wireless stations operating in India at the end of 1939, three were at Calcutta, one at Dacca, and one at Chittagong. Calcutta is equipped with direction-finding apparatus whereby ships at sea can obtain bearings on coastal stations. Wireless installations at Calcutta and at Chittagong have been adapted to meet aircraft requirements and now have radio aeronautical stations with the following specifications:

Calcutta Aeradio:

Location	N 22° 28' 56" - E 88° 21' 26"
Call Sign	VWC
Frequency	333 Kc/s
Wave Length	900 metres

Chittagong Aeradio:

Location	N 22° 21' 39" - E 91° 48' 27"
Call Sign	VTC
Frequency	333 Kc/s
Wave Length	900 metres

The government was planning in 1942 to establish an additional wireless station at Calcutta.

Radio Telephone. Prior to the fall of Rangoon, a radio-telephone connection was maintained between the Burmese capital and Madras. In 1933 direct radio-telephone connection was established between Bombay and England, and the network has been subsequently expanded so that every important city in India may communicate with England and, through England, with other parts of the world. In 1933 a direct wireless service was opened between Bombay and Tokyo.

e. Postal Services. The Posts and Telegraphs Department provides India with a well-organized postal service. For postal purposes, the country is divided into eight circles, one of which includes the provinces of Bengal and Assam. In March 1939 the two provinces had a total of 4,618 post offices and 10,788 letter boxes and were served by 4,286 rural postmen.

40. Finance.

The separation of provincial finance from that of the central government was accomplished through the Government of India Act, 1919. Functions were further separated by the Government of India Act, 1935. Under the former, Bengal was immediately better off to the extent of Rs. 7,500,000. However, since most of the expanding revenue sources were given to the central government and the responsibility for "nation building services" was given to the provinces, she found a growing discrepancy between her receipts and expenditures. During the 1930's she had a series of deficit budgets, in spite of certain grants and concessions from the central government. The year 1937-38 was an exception, when there was a surplus of Rs. 11,772,000. The 1941-42 budget estimates a deficit of Rs. 10,000,000 as far as revenue receipts and expenditures (excluding opening balance, non-revenue receipts, and expenditures) are concerned.

The government of Assam had a deficit of Rs. 481,000 in 1937-38, which grew to Rs. 4,100,000 in 1938-39. During each of these years she received a grant-in-aid of Rs. 3,000,000 from the central government.

The budget estimates of Assam and Bengal for 1941-42 are as follows (in rupees; 000 omitted; one rupee equals 30 cents).

ASSAM

	Receipts		Expenditures
Principal Heads of Revenue			
Land Revenue	12,669	Civil Works	5,818
Tax on Agricultural Income	2,950	Education (both European and non-European	4,397
Provincial Excise	3,306	Direct Demands on Revenue	4,012
Forests	2,050	General Administration	3,606
Commercial Stamps	1,543	Police	3,184
Customs (on goods entering local area for sale or consumption therein.)	1,150	Pensions and Superannuation Allowances	2,394
Motor Vehicles Tax	473	Medical	1,530
Other heads	614		
Total	24,755		

	Receipts		Expenditures
Other Revenue Civil Administration, Civil Works, Grants-in-aid from the Central Government, etc.	6,546	Other	7,549
Total Receipts from Revenue	31,301	Total Expenditures from Revenue	32,490

BENGAL

	Receipts		Expenditures
Principal Heads of Revenue			
Land Revenue	36,718	Police	23,845
Commercial Stamps	25,500	General Administration	18,404
Customs (on goods entering local area for sale or consumption therein.)	18,000	Education (both European and non-European)	18,891
Provincial Excises	17,500	Civil Works	16,831
Tax on Agricultural Income	8,700	Pensions and Superannuation Allowances	11,372
Civil Works	4,133	Medical	5,740
Registration	2,800	Public Health	5,175
Forests	2,520	Jails and Convict Settlements	3,801
Motor Vehicles Tax	2,220	Administration of Justice	9,881
Total	117,982		
Civil Administration, etc.	22,223	Other	39,798
Total Receipts from Revenue	140,314	Total Expenditures from Revenue	153,738

Land revenue, the largest source of income in both Bengal and Assam, is collected under a very ancient system. The government plays the role of over-landlord, and the revenue derived from the land is equivalent to rent. Protection and legal security are provided by the government, and are paid for by each landholder according to the value of his holding.

The amount of the provincial tax charge on each holding is determined under either Permanent or Temporary Settlement. Under the Permanent Settlement system, which is in use in Bengal, the amount of land revenue of the province was fixed in perpetuity at £3,000,000 and is payable by the landlord, called the zemindar, as distinguished from the actual cultivator. The system of Permanent Settlement was introduced into India by Lord Cornwallis at the close of the 18th century with the intention of converting a number of large revenue farmers in Bengal into landlords similar to the large landowners of Europe. Under this regime, the actual cultivators became the tenants of a new class of landlords.

The evils of this system have been that the right of collecting the rent has become worth far more than in the time of Lord Cornwallis, and layers of super-landlords have come into existence, until in some cases the peasant may be supporting ten or eleven middlemen between himself and the government.

In 1939-40 a commission under the chairmanship of Sir Francis Floud made a complete investigation of the permanent land tenure system. Their report, with a minority dissenting, emphasized the need of reform, and proposed State purchase of land as the best immediate remedy. As yet, nothing has been done in this connection.

In Assam and the rest of India the tax charge is decided under the Temporary Settlement. This system provides for thorough economic surveys of all land at intervals of approximately 30 years. These are based on the trigonometrical and topographic surveys of the Survey Department of the government of India. In this connection, the Settlement Officers, members of the Indian Civil Service, not only determine the amount of government demand, but also record all existing rights and responsibilities in the land for future reference in legal disputes.

Under the Temporary Settlement in India, land tenures fall into two classes--peasant-holdings and zemindari or landlord tenures.

Land tenures in Assam belong to the first class, in which the ryot, or cultivator, pays the revenue direct to the government. The basis of assessments on both classes of holdings is much more favorable to the cultivator than it used to be. In past years, what was believed to be a fair average sum was levied on the anticipated yield of the land during the ensuing period of settlement. Now the actual yield at the time of assessment alone is considered, so that the cultivator gets the whole benefit of subsequent improvements on his holding, brought about by his own efforts or by "unearned increment."

In Bengal it is estimated that the provincial government derives rather less than Ł3,000,000 from a total land rental placed at Ł12,000,000. The remaining Ł9,000,000 is pocketed by the zemindars (landlords). No exact figures can be quoted for total rentals in regard to ryotwari tracts under Temporary Settlement, but it is estimated that the extreme limit of the government's revenue is never more than one-fifth of the gross produce.

The excise revenue in British India is derived from the manufacture and sale of intoxicating liquors, hemp drugs, toddy, and opium. Excise was made over to the provincial governments in 1919, and the duties vary from province to province. The governing principle in fixing these rates is the highest duty compatible with the prevention of illicit distillation. Drugs are cultivated under restrictions and supervision, are stored in bonded warehouses, are subject to a quantitative duty before issue, are sold under license, and are restricted in private possession. Licenses to retail all forms of hemp drugs are sold by auction.

Commercial stamps on contracts, receipts, etc., are another important item of provincial revenue, particularly in Bengal where income from this source is second only to land revenue. The growth of forest revenue, expenditure, and surplus during the past 70 years has been steady. In general, the forest departments of the various provinces conduct their own sales direct with timber dealers or large consumers, though there are notable exceptions where extraction rights are leased to individual contractors, whose operations are under government supervision.

In the forecast of the 1942-43 budget, Bengal is to spend 8 percent of her total revenue on civil defense. This is a larger percentage than for any other province.

Currency. The units of currency used throughout India are the rupee, the anna, and the pie. A hundred thousand (of anything) are called a lakh, and ten million (of anything) are called a crore. The equivalents of Indian coins in American money are as follows:

Silver coins:

1 Rupee	$ .30
1/2 Rupee	.15
1/4 Rupee	.07 1/2
1/8 Rupee	.03 3/4

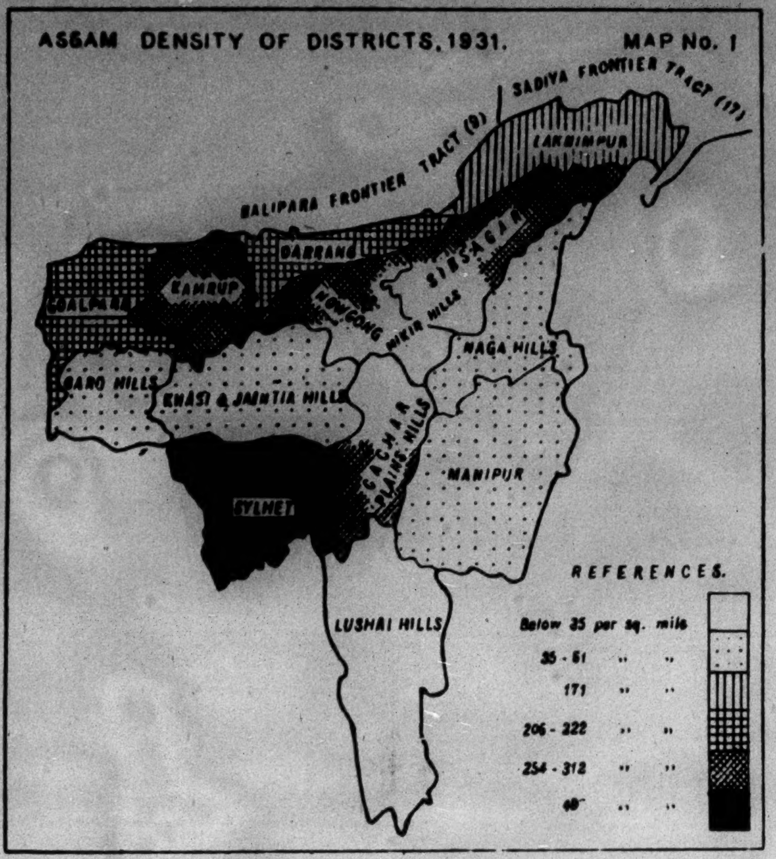
Nickel money:

8 Annas	$ .15
4 Annas	.07 1/2
2 Annas	.03 3/4
1 Anna	.02

Copper coins:

1 Anna (12 Pice)	$ .02
1/2 Anna (6 Pice)	.01
1/4 Anna (3 Pice)	.005
1/12 Anna (1 Pie)	.0016

(Paper notes for 1, 5, 10, 50, 100, 1000, and 10,000 rupees are circulated in India.)

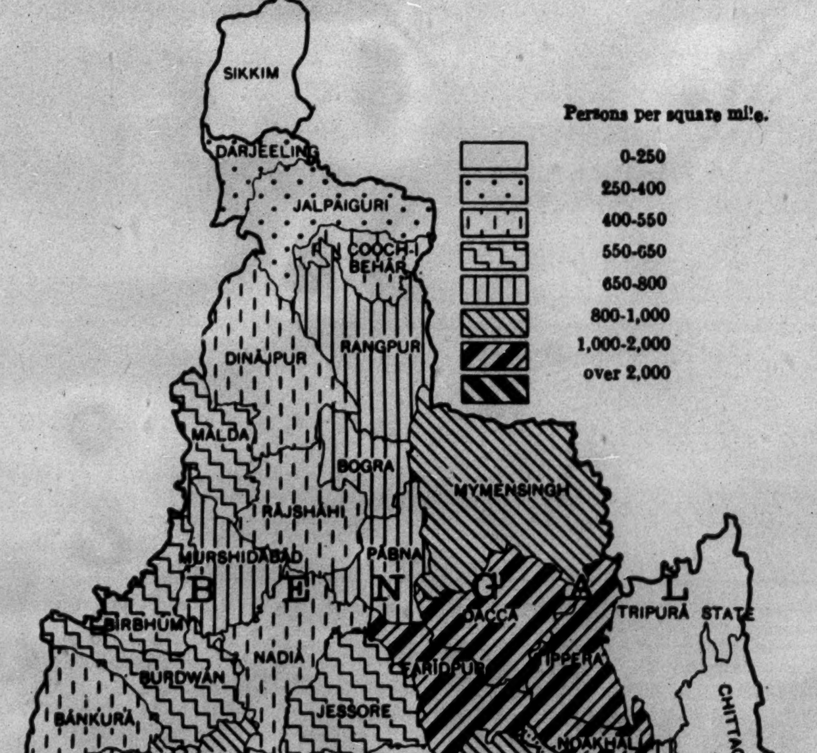


ASSAM DENSITY OF DISTRICTS, 1931. MAP No. 1

SADIYA FRONTIER TRACT (17)
BALIPARA FRONTIER TRACT (9)
LAKHIMPUR
DARRANG
SIBSAGAR
KAMRUP
GOALPARA
NOWGONG
MIKIR HILLS
NAGA HILLS
GARO HILLS
KHASI & JAINTIA HILLS
CACHAR PLAINS
CACHAR HILLS
MANIPUR
SYLHET
LUSHAI HILLS
REFERENCES.
Below 35 per sq. mile
35 - 51 " "
171 " "
206 - 222 " "
254 - 312 " "
40 " "

DIAGRAM No. I-11.

BENGAL—Density of district population, 1931.



Persons per square mile.
0-250
250-400
400-550
550-650
650-800
800-1,000
1,000-2,000
over 2,000
SIKKIM
DARJEELING
JALPAIGURI
COOCH BEHAR
DINAJPUR
RANGPUR
MALDA
BOGRA
MYMENSINGH
RAJSHAHI
MURSHIDABAD
PABNA
B E N G A L
BIRBHUM
DACCA
TIPPURA STATE
NADIA
FARIDPUR
TIPPERA
BURDWAN
JESSORE
BANKURA
HOOGHLY
NOAKHALI
CHITTAGONG HILL TRACTS
CALCUTTA
HOWRAH
KHULNA
BAKARGANJ
CHITTAGONG
MIDNAPORE
24 PARGANAS

APPENDIX VI (a)

—*Description of Class I Railways worked during the year 1937-38.*

Railway	(a) Mean Mileage worked.	Number of Stations. (b)	Total length of gradients (in miles). 1/50 and less.	1/51 to 1/80.	1/81 to 1/100.	1/101 to 1/200.	1/201 to 1/300.	Total.	Steepest gradient worked. Length (in miles).	Inclination.	Maximum Degree of curvature and radius. Degree.	Radius in feet.	Ratio of curve to total length of line expressed as a percentage.	Average amount of curvature per mile (Degrees).
1	2	3	4	5	6	7	3	9	10	11	12	13	14	15
5′ 6″ GAUGE.														
Bengal-Nagpur .	2,522·8	413	1·47	10·1	222·0	916·0	204·4	1,354·0	0·87	1 in 50	10·0	573	0·02	0·10
Bombay, Baroda & Central India.	1,258·2	258	*Nil*	1·35	0·61	261·5	95·1	358·6	0·88	1 in 80	5·75	996	14·6	19·9
Eastern Bengal .	900·5	242	*Nil*	*Nil*	0·65	3·42	10·3	14·4	0·65	1 in 100	6·00	955	13·1	10·5
East Indian .	4,450·1	766	0·15	23·0	66·1	304·6	135·4	529·3	0·15	1 in 50	8·00	712	15·0	9·80
Great Indian Peninsula.	3,544·9	510	20·8	24·3	91·5	1,047·1	414·3	1,598·0	0·16	1 in 34	9·92	600	20·4	15·6
Madras and Southern Mahratta.	1,157·2	262	*Nil*	14·1	36·0	185·7	109·0	344·8	0·80	1 in 60	7·96	720	22·8	9·72
Nizam's State .	688·1	98	*Nil*	*Nil*	153·7	220·8	30·7	405·2	2·52	1 in 100	(c) 4·40	(c) 1,300	18·9	20·2
N Western .	6,260·2	952	109·7	122·0	225·1	249·7	227·9	934·4	2·75	1 in 25	12·6	455	(i) 12·2	(i) 13·7
South Indian .	798·1	165	*Nil*	33·4	65·7	135·5	55·2	289·8	1·16	1 in 62	7·16	800	34·8	24·6
Total .	21,580·1	3,666	132·1	228·3	861·4	3,324·3	1,282·3	5,828·5						
3′ 3⅜″ GAUGE.														
Assam Bengal .	1,329·4	325	10·3	47·8	31·2	182·3	39·8	311·4	10·1	(d) 1 in 37	15·0	382	14·8	35·2
Bengal and North Western.	2,189·2	365	0·11	1·52	3·16	9·17	8·88	22·8	0·11	1 in 50	8·73	656	10·0	7·96
Bombay, Baroda & Central India.	2,025·1	323	3·40	0·48	19·4	393·9	235·2	652·4	3·40	1 in 40	(e) 8·00	(e) 716	9·55	10·3
Eastern Bengal .	1,072·1	213	0·34	0·63	3·97	40·7	47·5	93·1	0·34	1 in 50	11·4	500	11·1	10·9
East Indian .	65·7	1	*Nil*	*Nil*	*Nil*	0·65	2·80	3·45	0·65	1 in 200	7·66	748	14·7	11·6
Jodhpur . .	1,055·0	163	0·51	*Nil*	1·55	236·1	72·2	310·4	0·51	1 in 50	8·00	716	8·57	11·3
Madras and Southern Mahratta.	2,012·7	279	14·2	53·4	628·9	392·3	115·8	1,204·6	2·01	1 in 40	12·0	479	20·3	[illegible]3·6
Nizam's State .	659·8	110	*Nil*	*Nil*	6·68	350·6	174·8	532·1	0·78	1 in 100	5·00	1,146	10·7	8·43
R und and maon.	562·9	104	*Nil*	4·85	8·44	13·8	23·6	50·7	3·31	1 in 70	12·0	479	8·70	8·22
South Indian .	1,770·9	469	24·0	35·3	90·8	368·7	137·1	655·9	0·31	(h) 1 in 53	(f) 11·5	500	18·0	(g) 16·5
Total .	12,742·8	2,352	52·9	141·0	794·1	1,988·2	857·7	3,836·9						
2′ 6″ AND 2′ 0″ GAUGES.														
Bengal Nagpur .	926·3	144	0·51	44·2	153·5	205·0	54·9	458·1	0·51	1 in 50	14·0	409	18·6	38·3
Bombay, Baroda & Central India.	224·5	64	*Nil*	4·20	29·1	35·2	10·4	78·9	0·35	1 in 75	12·0	478	18·3	40·1
Eastern Bengal .	36·9	14	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	*Nil*	15·[illegible]	382	25·0	42·3
Great Indian Peninsula.	244·4	46	*Nil*	1·81	60·8	63·4	14·5	140·5	0·80	1 in 80	12·0	478	22·6	41·3
North Western .	685·8	91	108·9	42·8	97·5	85·5	41·2	375·9	0·80	1 in 20	52·1	110	21·6	125·2
South Indian .	96·7	16	*Nil*	32·8	11·9	19·4	2·50	66·6	2·39	1 in 6	6·00	955	30·2	[illegible]
Total .	2,216·6	375	109·4	125·8	352·8	408·5	123·5	1,120·0						
GRAND TOTAL .	36,539·5	6,393	294·4	498·1	2,008·3	5,721·0	2,263·5	10,785·4						

(a)	Mean mileage worked.	Number of Stations.
Class II Railways	4,086·39	740
Class III Railways	1,150·50	339

(b) Excludes block huts, branch booking offices and out agencies.

(c) The figures are for the main line. The maximum curvature on the mineral Branch is 5·73° and radius = 1,000 ft.

(d) 1 in 37 on a straight compensated to 1 in 43 on curves.

(e) Excepting Mhow Ghat section on which the maximum curvature is 10·2° and radius = 530 ft.

(f) The sharpest curve on the Travancore Ghat is 477 ft. and on the Nilgiri Mountain Ry. it is 314 ft. (specially sanctioned).

(g) The figure is for plains section, the figure for ghat section being 341·7°.

(h) Excepting the Nilgiri Mountain Rly. the Steepest Gradient worked on which is 1 in 12·28 for a length of 0·28 mile, 1 in 12·50 generally in the rack section and 1 in 25 for a length of 2·68 miles in the adhesive Section.

(i) Figures relating to Nok-Kundi-Zahidan and Landi Kotal-Landi Khana Sections (closed to traffic) not excluded while calculating the results.

APPENDIX VI (b)

—Statement of Equipment showing the actual stock running on Class I Railways on the 31st March 1938.

A.—LOCOMOTIVES AND RAIL MOTORS, ETC.—By gauges.

Railway.	Locomotives.						Rail motors.			Steam coaches.			Electric motor coaches.			
	Steam.			Electric.	Total tractive effort lbs.			Seats.			Seats.			Seats.		Average weight in tons.
	Tender.	Tank.	Total.		Steam.	Electric.	No.	Upper.	Lower.	No.	Upper.	Lower.	No. (in units.)	Upper.	Lower.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
5' 6" GAUGE.																
Bengal Nagpur	604	52	656	..	20,341,604	..	..	..	..	2	48	160	..	..	..	..
Bombay, Baroda and Central India.	321	*39	360	2	9,414,737	10,000	..	...	..	..	...	..	40	..	4,800	71
Eastern Bengal	220	74	294	..	7,462,646	..	..	..	..	..	..	..	..	..	..	..
East Indian	1,131	411	1,542	..	36,655,166	..	..	..	..	3	30	270	..	..	..	..
Great Indian Peninsula	615	67	682	65	18,097,024	2,048,000	..	..	..	(a)1	..	55	53	..	4,388	67
Madras and Southern Mahratta.	240	58	298	..	7,457,624	..	..	..	..	..	..	..	..	..	..	..
Nizam's State	81	4	85	..	2,122,026	..	..	..	..	..	..	..	..	..	..	..
North Western	1,074	110	1,184	2	31,482,264	58,352	(c)1	7	..	(b) 7	30	525	..	..	..	..
South Indian	137	14	151	..	3,373,636	..	..	..	..	..	..	..	..	..	..	..
Total	4,423	829	5,252	69	136,406,727	2,116,352	1	7	..	13	108	1,010	93	..	9,188	69
3' 3⅜" GAUGE.																
Assam Bengal	191	13	204	..	3,109,807	..	..	..	..	..	..	..	..	..	..	..
Bengal and North Western.	366	28	394	..	5,215,435	..	..	..	..	..	..	..	..	..	..	..
Bombay, Baroda and Central India.	395	65	460	..	7,087,906	..	..	..	..	3	36	307	..	..	..	..
Eastern Bengal	205	2	207	..	3,279,481	..	..	..	..	2	..	56	..	..	..	..
Jodhpur	103	4	107	..	1,399,462	..	1	7	5	..	..	..	..	..	..	..
Madras and Southern Mahratta.	316	5	321	..	5,335,999	..	..	..	..	..	..	..	..	..	..	..
Nizam's State	75	12	87	..	1,305,729	..	..	..	..	2	..	224	..	..	..	..
Rohilkund and Kumaon	78	5	83	..	1,133,245	..	..	..	..	..	..	..	..	..	..	..
South Indian	316	67	383	4	5,414,751	41,600	3	..	220	..	..	..	24	540	696	38
Total	2,045	201	2,246	4	33,281,815	41,600	4	7	225	7	36	587	24	540	696	38
2' 6" GAUGE.																
Bengal-Nagpur	101	14	115	..	1,565,848	..	..	..	..	3	18	95	..	..	..	..
Bombay, Baroda and Central India.	9	18	27	..	236,279	..	..	..	..	..	..	..	..	..	..	..
Eastern Bengal	..	9	9	..	34,598	..	..	..	..	..	..	..	..	..	..	..
Great Indian Peninsula	13	8	21	..	309,392	..	..	..	..	(a)1	..	58	..	..	..	..
North Western	68	32	100	..	[illegible]	..	6	70	..	3	..	108	1	16	..	13
South Indian	6	5	11	..	[illegible]	..	..	..	..	..	..	..	..	..	..	..
Total	197	86	[illegible]	..	3,724,072	..	6	70	..	7	18	262	1	16	..	13

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* Includes one Diesel Electric Shunting Engine.

(a) Internal combustion coach.
(b) Includes one Sentinel Locomotive.
(c) Used as Inspection Car without rearrangement of the seats.

APPENDIX VI (c)

—*Statement of Equipment showing the actual stock*

C.—Goods

Railway.	Covered wagons. (In units.)					Open wagons (high-sided). (In units.)					Open	
	17 tons and under.	Over 17 and up to 24 tons.	Over 24 and up to 36 tons.	Over 36 tons.	Total capacity in tons.	17 tons and under.	Over 17 and up to 24 tons.	Over 24 and up to 36 tons.	Over 36 tons.	Total capacity in tons.	17 tons and under.	Over 17 and up to 24 tons.
1	2	3	4	5	6	7	8	9	10	11	12	13
5′ 6″ Gauge.												
Bengal Nagpur .	..	6,958		..	147,440	..	12,766	..	..	280,778	..	58
Bombay, Baroda & Central India.	446	5,502	..	..	128,626	29	2,106	..	..	46,869	..	..
Eastern Bengal .	967	5,992	..	2	140,164	85	52	..	2	2,857	208	425
East Indian .	453	30,583	6	2	618,716	93	16,194	12	14	342,771	218	2
Great Indian Peninsula.	2,148	8,766	..	1,076	263,363	463	2,729	..	215	74,498	438	185
Madras & Southern Mahratta.	462	3,667	..	..	89,475	20	990	..	73	25,684	..	294
Nizam's State .	..	(a) 936	..	..	20,159	..	(b) 939	..	..	20,752	..	187
North Western .	242	22,295	187	112	473,725	9	2,435	..	101	55,801	6	1,665
South Indian .	..	1,507	..	..	33,218	..	615	..	..	12,690	..	..
Total .	4,718	86,208	193	1,192	1,914,895	700	38,818	12	405	863,430	870	2,816

Railway	Covered wagons. (In units.)					Open wagons (high-sided). (In units.)					Open	
	10 tons and under.	Over 10 and up to 15 tons.	Over 15 and up to 20 tons	Over 20 tons.	Total capacity in tons	10 tons and under.	Over 10 and up to 15 tons.	Over 15 and up to 20 tons.	Over 20 tons.	Total capacity in tons.	10 tons and under.	Over 10 and up to 15 tons.
1	2	3	4	5	6	7	8	9	10	11	12	13
3′ 3⅜″ Gauge.												
Assam Bengal .	607	3,939	100	..	51,483	11	..	44	..	990	..	..
Bengal & North-Western.	3,928	5,497	955	..	119,343	..	..	..	..	..	423	950
Bombay, Baroda & Central India.	69	5,290	382	95	76,863	218	128	463	14	12.445	..	387
Eastern Bengal .	990	2,110	656	802	72,137	..	10	2	10	454	132	175
Jodhpur . .	..	1,515	492	100	24,207	..	..	..	..	..	..	97
Madras & Southern Mahratta.	230	2,987	1,821	40	73,914	..	690	65	43	12,732	12	..
Nizam's State .	..	967	..	..	12,400	..	*42	..	..	476	..	‡253
Rohilkund and Kumaon.	306	1,278	874	..	34,128	..	..	30	..	540	2	255
South Indian .	350	1,237	1,634	45	51,114	43	346	179	346	15,430	..	.
Total .	6,480	24,820	6,914	1,082	515,589	272	1,225	783	413	43,086	579	2,117

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* 8 of these have been coupled to goods brake vans.

(a) 20 of these are being used as coaching vehicles.

(b) Includes 11 open wagons stencilled as coaching vehicles.

‡ 2 of these are being utilised as temporary water tanks.

APPENDIX VI (c)

*Class I Railways on the 31st March 1938—Broad and Metre gauges—*contd.

Stock.

Wagons (low-sided). (In units.)			Special wagons. (In units.)							Total goods vehicles for public use. In units. (Cols. 2 to 23 excluding Cols. 6, 11 and 16.)	Brake vans used indiscriminately on passenger, mixed or goods service. (In units.)	Railway service vehicles (including inspection trollies). (In units.)	Travelling Cranes and their dummy trucks. (In units.)	Road Motors.	Railway.
					Timber or rail wagons.										
Over 24 and up to 26 tons.	Over 26 tons.	Total capacity in tons.	Live Stock Wagons.	Wagons for explosives.	24 tons and under.	Over 24 tons.	Petrol tank Wagons.	Other tank Wagons.	Miscellaneous Wagons.						
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
															5′ 6″ Gauge.
..	..	1,137	32	10	258	569	30	168	1,115	21,964	475	209	78	2	B. N.
*36	221	12,179	916	11	..	..	30	134	1	9,434	199	518	16	18	B. B. & C. I.
34	..	14,355	..	4	24	97	87	87	104	8,171	90	123	27	4	E. B.
..	..	2,460	107	36	25	406	25	564	363	49,103	999	1,173	122	32	E. I.
..	..	10,533	1,459	32	181	70	84	200	29	18,077	515	606	91	22	G. I. P.
..	..	7,166	3	26	99	9	56	99	7	5,835	136	97	30	2	M. & S. M.
..	..	3,396	..	..	10	..	..	..	..	2,042	38	158	5	11	N. S.
..	144	42,708	4	48	77	437	108	452	†211	28,523	387	405	99	20	N. W.
..	..	..	..	13	101	12	14	8	4	2,274	78	136	7	..	S. I.
70	365	93,934	2,521	180	775	1,600	434	1,712	1,834	145,423	2,917	3,425	475	111	Total

Wagons (low-sided). (In units.)			Special wagons. (In units.)							Total goods vehicles for public use. In units. (Cols. 2 to 23 excluding Cols. 6, 11 and 16.)	Brake vans used indiscriminately on passenger, mixed or goods service (in units).	Railway service vehicles (including inspection trollies) (in units).	Travelling Cranes and their dummy trucks (in units).	Road Motors.	Railway.
					Timber or rail wagons.										
Over 15 and up to 20 tons.	Over 20 tons.	Total capacity in tons.	Live Stock Wagons.	Wagons for explosives.	15 tons and under.	Over 15 tons.	Petrol tank Wagons.	Other tank Wagons.	Miscellaneous Wagons.						
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
															3′ 3⅜″ Gauge.
..	..	..	14	1	..	201	156	89	152	5,314	2	596	19	2	A. B.
28	..	15,673	..	..	278	100	20	156	1	12,346	130	28	47	1	B. & N. W.
283	..	10,190	983	25	11	270	6	30	24	8,688	148	631	44	4	B. B. & C. I.
91	108	8,169	..	8	80	169	11	55	10	5,419	78	102	30	..	E. B.
70	223	6,749	35	3	..	..	6	19	..	2,580	50	92	2	..	Jodhpur.
186	45	3,830	99	11	118	21	26	67	172	6,592	241	104	34	..	M. & S. M.
..	2	2,071	..	..	20	..	1	3	..	1,288	43	131	6	1	N. S.
..	..	2,983	..	2	62	40	..	..	7	2,856	64	73	26	1	R. & K.
23	..	247	..	9	1	125	26	97	13	4,494	213	1,410	30	1	S. I.
681	378	50,830	1,131	59	570	926	252	516	379	49,577	969	3,167	238	10	Total.

* Includes one Six-wheeler.

† Includes 205 sugar cane trucks.

APPENDIX VI (cc)

— Statement of Equipment showing the actual stock running on Class I Railways on the 31st March 1938—concld.

COACHING STOCK—(*Narrow gauge*)

Railway.	PASSENGER VEHICLES. (For public use.) No. (in units).	Seats by Classes. 1st.	2nd.	Inter.	3rd.	Other coaching vehicles (including brake vans for public use). In units.	Total. In units.	Railway service vehicles (including officers' carriages). In units.	Steam coach trailer for public use. In units.
1	2	3	4	5	6	7	8	9	10
2' 6" Gauge.									
Bengal Nagpur	362	523	506	817	9,687	26	388	23	3
Bombay, Baroda and Central India .	72	(a)	176	(a)	3,008	..	72	..	..
Eastern Bengal	58	70	30	113	1,473	..	58	..	..
Great Indian Peninsula	48	(a)	66	..	1,878	2	50	1	..
North Western	291	382	540	869	9,681	60	351	10	..
South Indian	34	..	40	..	783	..	34	1	..
TOTAL .	865	975	1,358	1,799	26,510	88	953	35	3

GOODS STOCK—(*Narrow gauge*).

Railway.	GOODS WAGONS (INCLUDING SPECIAL WAGONS AND BRAKE-VANS). Number. (In units).	Total capacity (in tons).	Railway service wagons. (In units).	REMARKS.
1	2	3	4	5
2' 6" Gauge.				
Bengal Nagpur	*1,986	**30,814	12	
Bombay, Baroda and Central India . . .	‖328	¶4,063	2	
Eastern Bengal	†23	††101	..	
Great Indian Peninsula	‡206	‡‡3,220	30	
North Western	§824	§§11,226	83	
South Indian	78	765	(b)1	
TOTAL .	3,445	50,189	128	

* Includes 303 special wagons.
† Includes 6 special wagons.
‡ Includes 5 special wagons.
§ Includes 127 special wagons.
‖ Includes 16 special wagons.
¶ Includes 61 tons carrying capacity of 16 special wagons.
** Includes 3,402 tons carrying capacity of 303 special wagons.
†† Includes 29 tons carrying capacity of 6 special wagons.
‡‡ Includes 30 tons carrying capacity of 5 special wagons.
§§ Includes 886 tons carrying capacity of 127 special wagons.
(a) Included in next column.
(b) Motor Inspection Trolly.

APPENDIX VI (d)

—Statement of Goods Revenue Statistics of Class I Railways

Railway.	Year.	Tons originating on home line (whether local or foreign). Coal for the public.	Coal for foreign Railways and home line construction.	Coal for home line.	Grain and oilseeds.	Other commodities (including other revenue stores).	Total. (Columns 3+4+5+6+7.)	(a). Other traffic.	(a). Total. (Columns 8+9.)
1	2	3	4	5	6	7	8	9	10
5' 6" Gauge.									
Bengal-Nagpur	*1936-37*	*4,691*	*1,048*	*867*	*809*	*6,466*	*13,881*	*1,573*	*15,454*
	1937-38	5,269	1,279	979	885	7,451	15,863	1,869	17,732
Bombay, Baroda and Central India.	*1936-37*	*1*	*Nil*	*16*	*379*	*2,610*	*3,006*	*2,226*	*5,232*
	1937-38	1	Nil	14	350	2,796	3,161	2,444	5,605
Eastern Bengal	*1936-37*	*5*	..	*13*	*235*	*1,826*	*2,079*	*2,733*	*4,812*
	1937-38	7	..	5	200	2,005	2,217	2,773	4,990
East Indian	*1936-37*	*8,167*	*2,400*	*1,611*	*1,209*	*7,212*	*20,599*	*3,552*	*24,151*
	1937-38	9,373	2,681	1,778	1,346	7,703	22,881	3,489	26,370
Great Indian Peninsula	*1936-37*	*814*	*13*	*556*	*1,116*	*4,559*	*7,058*	*3,408*	*10,466*
	1937-38	838	5	608	877	4,502	6,830	4,216	11,046
Madras and Southern Mahratta.	*1936-37*	*52*	*Nil*	..	*467*	*1,334*	*1,853*	*2,063*	*3,916*
	1937-38	51	..	1	422	1,352	1,826	2,335	4,161
Nizam's State	*1936-37*	*349*	*341*	*210*	*235*	*389*	*1,524*	*512*	*2,036*
	1937-38	478	448	226	202	401	1,755	562	2,317
North Western (Commercial).	*1936-37*	*18*	*1*	*25*	*1,989*	*6,492*	*8,525*	*4,333*	*12,858*
	1937-38	16	1	23	2,093	6,298	8,431	4,710	13,141
North-Western (Military)	*1936-37*	*63*	*Nil*	*3*	*207*	*1,168*	*1,441*	*1,028*	*2,469*
	1937-38	72	..	5	168	1,322	1,567	1,166	2,733
North Western (Total)	*1936-37*	*81*	*1*	*28*	*2,196*	*7,660*	*9,966*	*3,525*	*13,491*
	1937-38	88	1	28	2,261	7,620	9,998	3,811	13,809
South Indian	*1936-37*	*19*	*Nil*	*8*	*189*	*1,273*	*1,489*	*732*	*2,221*
	1937-38	38	Nil	18	154	1,270	1,480	698	2,178
Total 5' 6" Gauge.	*1936-37*	*14,179*	*3,803*	*3,309*	*6,835*	*33,329*	*61,455*	*(a)20,324*	*(a)81,779*
	1937-38	16,143	4,414	3,657	6,697	35,100	66,011	(a) 22,197	(a) 88,208
3' 3⅜" Gauge.									
Assam Bengal	*1936-37*	*28*	*2*	*11*	*131*	*1,026*	*1,198*	*385*	*1,583*
	1937-38	28	1	22	126	1,044	1,221	395	1,616
Bengal and North Western	*1936-37*	*8*	*1*	*43*	*646*	*3,131*	*3,829*	*1,464*	*5,293*
	1937-38	9	..	49	610	3,400	4,068	1,396	5,464
Bombay, Baroda and Central India.	*1936-37*	*2*	*Nil*	*6*	*428*	*1,271*	*1,707*	*2,344*	*4,051*
	1937-38	1	..	6	429	1,256	1,692	2,434	4,126
Burma	*1936-37*	*48*	*Nil*	*173*	*1,299*	*2,337*	*3,857*	*Nil*	*3,857*
	1937-38	‡	‡	‡	‡	‡	‡	‡	‡

(a) Columns 9 to 10.—In these totals consignments passing over two or more railways or two or more gauges on the same railway only on each railway system.

‡ Figures not received due to separation with effect from 1-4-37.

APPENDIX VI (d)

for the years 1936-37 and 1937-38 (In thousands).

Tons carried (a).							Tons terminating.	Tons of cross traffic.	Railway.
Coal for the public.	Coal for foreign railways and home line construction.	Coal for home line.	Grain and oilseeds.	Other commodities (including other revenue stores).	Total. (Columns 11+12+13+14+15.)	(a) On the system.			
11	12	13	14	15	16	17	18	19	20
									5' 6" GAUGE.
5,194	*1,194*	*867*	*926*	*7,273*	*15,454*	*15,835*	*11,359*	*375*	Bengal-Nagpur.
5,929	1,404	979	1,002	8,418	17,732	18,176	13,065	368	
783	*20*	*232*	*697*	*3,500*	*5,232*	*8,126*	*3,992*	*301*	Bombay, Baroda and Central India.
941	23	289	707	3,645	5,605	8,559	4,335	340	
1,228	*115*	*293*	*315*	*2,861*	*4,812*	*5,966*	*3,757*	*568*	Eastern Bengal.
1,388	89	248	276	2,989	4,990	6,133	3,839	596	
8,882	*2,652*	*1,611*	*1,383*	*9,123*	*24,151*	*24,151*	*16,373*	*1,101*	East Indian.
10,125	2,899	1,778	1,930	9,638	26,370	26,370	18,009	1,006	
1,627	*275*	*849*	*1,743*	*5,972*	*10,466*	*10,495*	*7,808*	*477*	Great Indian Peninsula.
2 067	383	1,010	1,565	6,021	11,046	11,078	7,661	1,369	
184	*334*	*391*	*856*	*2,151*	*3,916*	*5,865*	*2,824*	*485*	Madras and Southern Mahratta.
254	355	527	827	2,198	4,161	6,037	3,104	556	
377	*341*	*210*	*439*	*669*	*2,036*	*2,504*	*818*	*313*	Nizam's State.
516	453	226	437	685	2,317	2,796	839	351	
1,139	*1*	*1,022*	*2,475*	*8,221*	*12,858*	†	*10,950*	†	North Western (Commercial).
1,314	1	1,209	2,565	8,052	13,141	†	11,012	†	
213	..	*121*	*322*	*1,813*	*2,469*	†	*1,375*	†	North-Western (Military).
231	..	130	292	2,080	2,733	†	1,521	†	
1,177	*1*	*1,025*	*2,483*	*8,805*	*13,491*	*13,609*	*12,325*	*169*	North-Western (Total).
1,356	1	1,213	2,568	8,671	13,809	13,969	12,533	185	
23	*Nil*	*270*	*418*	*1,510*	*2,221*	*5,137*	*1,655*	*177*	South Indian.
43	Nil	223	387	1,525	2,178	5,194	1,622	119	
(a) *19,475*	(a) *4,932*	(a) *5,748*	(a) *9,760*	(a) *41,864*	(a) *81,779*		*60,911*	*3,966*	TOTAL 5' 6" GAUGE.
(a) 22,619	(a) 5,607	(a) 6,493	(a) 9,699	(a) 43,790	(a) 88,208		65,007	4,894	
									3' 3⅜" GAUGE.
99	*10*	*105*	*162*	*1,207*	*1,583*	*1,583*	*1,293*	*11*	Assam Bengal.
113	8	97	166	1,232	1,616	1,616	1,258	14	
322	*1*	*276*	*944*	*3,749*	*5,292*	*5,292*	*4,431*	*58*	Bengal and North-Western.
330	..	298	883	3,963	5,464	5,464	4,603	80	
300	*101*	*242*	*866*	*2,542*	*4,051*	*	*2,277*	*899*	Bombay, Baroda and Central India.
331	112	284	881	2,518	4,126	*	2,312	1,016	
48	*Nil*	*173*	*1,299*	*2,337*	*3,857*	*3,857*	*3,857*	*Nil*	Burma.
‡	‡	‡	‡	‡	‡	‡	‡	‡	

are considered as two or more separate consignments, but in column 17 each consignment is considered to have performed one journey

* Shown under 5' 6' gauge. † Not required.

APPENDIX VI (d)

—Statement of Goods Revenue Statistics of Class I Railways

Railway.	Year.	Tons originating on home line (whether local or foreign). Coal for the public.	Coal for foreign Railways and home line construction.	Coal for home line.	Grain and oilseeds.	Other commodities (including other revenue stores).	Total. (Columns 3+4+5+6+7.)	(a). Other traffic.	(a) Total. (Columns 8+9.)
1	2	3	4	5	6	7	8	9	10
3′ 3⅜″ Gauge—concld.									
Eastern Bengal	*1936-37*	*1*	..	*6*	*254*	*987*	*1,248*	*1,229*	*2,477*
	1937-38	1	..	9	198	911	1,119	1,267	2,386
Jodhpur	*1936-37*	*Nil*	*Nil*	*4*	*154*	*691*	*849*	*447*	*1,296*
	1937-38	1	Nil	4	178	638	821	476	1,297
Madras and Southern Mahratta.	*1936-37*	*29*	*12*	*152*	*608*	*1,005*	*1,806*	*732*	*2,538*
	1937-38	29	12	172	464	985	1,662	758	2,420
Nizam's State	*1936-37*	..	..	..	*180*	*256*	*436*	*260*	*696*
	1937-38	..	..	..	200	225	425	280	705
Rohilkund and Kumaon	*1936-37*	*Nil*	*Nil*	*53*	*94*	*1,387*	*1,534*	*232*	*1,766*
	1937-38	..	..	68	138	1,237	1,443	166	1,609
South Indian	*1936-37*	*74*	*Nil*	*22*	*735*	*2,201*	*3,032*	*421*	*3,453*
	1937-38	105	Nil	46	690	2,223	3,064	461	3,525
Total 3′ 3⅜″ gauge	*1936-37*	*190*	*15*	*475*	*4,523*	*14,292*	*19,495*	(a) *7,514*	(a) *27,009*
	1937-38	174	13	376	3,043	11,919	15,525	(a) 7,623	(a) 23,148
2′ 6″ and 2′ 0″ gauges.									
Bengal-Nagpur.	*1936-37*	*39*	*1*	*51*	*91*	*431*	*613*	*146*	*759*
	1937-38	40	2	57	90	592	781	147	928
Bombay, Baroda and Central India.	*1936-37*	*Nil*	*Nil*	*Nil*	*22*	*229*	*251*	*66*	*317*
	1937-38	Nil	Nil	Nil	15	242	257	71	328
Eastern Bengal	*1936-37*	*Nil*	*Nil*	*Nil*	*Nil*	*2*	*2*	*1*	*3*
	1937-38	..	..	..	..	2	2	1	3
Great Indian Peninsula	*1936-37*	*Nil*	*Nil*	*Nil*	*18*	*82*	*100*	*73*	*173*
	1937-38	..	..	..	20	76	96	62	158
North Western (Commercial)	*1936-37*	*88*	..	*14*	*96*	*108*	*306*	*141*	*447*
	1937-38	99	..	20	102	135	356	164	520
North-Western (Military)	*1936-37*	*Nil*	..	*2*	*1*	*45*	*48*	*46*	*94*
	1937-38	..	..	2	2	51	55	46	101
North-Western (Total)	*1936-37*	*88*	..	*16*	*97*	*153*	*354*	*161*	*515*
	1937-38	99	..	22	104	186	411	179	590
South Indian	*1936-37*	*Nil*	*Nil*	*Nil*	*11*	*20*	*31*	*12*	*43*
	1937-38	Nil	Nil	Nil	19	19	38	14	52
Total 2′ 6″ & 2′ 0″ gauges	*1936-37*	*127*	*1*	*67*	*239*	*917*	*1,351*	(a) *459*	(a) *1,810*
	1937-38	139	2	79	248	1,117	1,585	(a) 474	(a) 2,059
Total Class I Railways	*1936-37*	*14,476*	*3,819*	*3,851*	*11,617*	*48,538*	*82,301*	(a) *28,297*	(a)*110,598*
	1037-38	16,456	4,429	4,112	9,988	48,136	83,121	(a) 30,294	(a)113,415

(a) Columns 9 to 16.—In these totals consignments passing over two or more railways or two or more gauges on the same railway only on each railway system.

APPENDIX VI (d)

for the years 1936-37 and 1937-38 (In thousands)—contd.

Tons carried. (a)									
Coal for the public.	Coal for foreign railways and home line construction.	Coal for home line.	Grain and oilseeds.	Other commodities (including other revenue stores).	Total (Columns 11+12+13+14+15).	(a) On the system.	Tons terminating.	Tons of cross traffic.	Railway.
11	12	13	14	15	16	17	18	19	20
									3′ 3⅜″ GAUGE—*concld.*
245	*96*	*129*	*380*	*1,627*	*2,477*	*	*1,093*	*699*	Eastern Bengal.
295	70	114	317	1,590	2,386	*	1,115	614	
26	*8*	*65*	*283*	*914*	*1,296*	*1,296*	*894*	*198*	Jodhpur.
28	8	60	336	865	1,297	1,297	781	194	
56	*25*	*158*	*855*	*1,444*	*2,538*	*	*1,877*	*103*	Madras and Southern Mahratta.
72	22	180	703	1,443	2,420	*	1,819	116	
36	*1*	*30*	*250*	*379*	*696*	*	*383*	*65*	Nizam's State.
42	1	34	275	353	705	*	362	70	
26	*Nil*	*53*	*122*	*1,565*	*1,766*	*1,766*	*1,399*	*2*	Rohilkund and Kumaon.
23	..	68	146	1,372	1,609	1,609	1,229	2	
75	..	*128*	*815*	*2,435*	*3,453*	*	*3,143*	*12*	South Indian.
106	Nil	169	779	2,471	3,525	*	3,172	10	
(a) *1,223*	(a) *261*	(a) *1,280*	(a) *5,976*	(a) *18,269*	(a) *27,009*		*20,437*	*1,947*	TOTAL 3′ 3⅜″ GAUGE.
(a) 1,230	(a) 221	(a) 1,313	(a) 4,476	(a) 15,908	(a) 23,148		16,661	2,116	
									2′ 6″ AND 2′ 0″ GAUGES.
60	1	*54*	*113*	*522*	*750*	*	*530*	*7*	Bengal-Nagpur.
72	2	60	116	678	928	*	587	5	
4	*Nil*	*1*	*45*	*267*	*317*	*	*132*	*4*	Bombay, Baroda and Central India.
3	..	1	43	281	328	*	116	6	
Nil	*Nil*	*Nil*	*Nil*	*3*	*3*	*	*1*	*Nil*	Eastern Bengal.
..	..	..	..	3	3	*	1	..	
10	*Nil*	*Nil*	*43*	*120*	*173*	*	*103*	*Nil*	Great Indian Peninsula.
13	..	..	36	109	158	*	94	..	
103	..	*14*	*114*	*216*	*447*	*	*215*	†	North-Western (Commercial).
118	..	21	117	264	520	*	271	†	
5	..	*4*	*6*	*79*	*94*	*	*64*	†	North-Western (M'litary).
5	..	4	6	86	101	*	60	†	
104	..	*16*	*118*	*277*	*515*	*	*279*	†	North-Western (Total).
119	..	22	122	327	590	*	331	†	
Nil	*Nil*	*Nil*	*13*	*30*	*43*	*	*17*	*Nil*	South Indian.
Nil	Nil	Nil	22	30	52	*	22	Nil	
(a) *187*	(a) *1*	(a) *71*	(a) *332*	(a) *1,219*	(a) *1,810*		*1,042*	*11*	TOTAL 2′ 6″ & 2′ 0″ GAUGES.
(a) 207	(a) 2	(a) 83	(a) 339	(a) 1,428	(a) 2,059		1,151	11	
(a) *20,395*	(a) *5,174*	(a) *7,169*	(a) *16,568*	(a) *61,292*	(a) *110,598*	*105,482*	*82,440*	*5,924*	TOTAL CLASS I RAILWAYS.
(a) 24,156	(a) 5,830	(a) 7,889	(a) 14,514	(a) 61,026	(a) 113,415	108,288	82,839	7,021	

are considered as two or more separate consignments but in column 17 each consignment is considered to have performed one journey

* Shown under 5′ 6″ gauge. † Not required.

APPENDIX VI (e)

.—Statement of Density of Traffic on Class I Railways for the years 1936-37 and 1937-38

Railway.	Year.	Passenger miles per annum (Including Departmental). Per running track mile.	Passenger miles per annum (Including Departmental). Per route mile.	Net ton miles per annum (Including Departmental). Per running track mile.	Net ton miles per annum (Including Departmental). Per route mile.	Gross ton miles per annum (Including Departmental & weight of engine). Per running track mile.	Gross ton miles per annum (Including Departmental & weight of engine). Per route mile.	Train miles per running track mile per day (Including Departmental).
1	2	3	4	5	6	7	8	9
5′ 6″ Gauge.								
Bengal Nagpur	*1936-37*	*282,719*	*312,031*	*934,326*	*1,033,310*	(a) *3,231,555*	(a) *3,559,296*	(a) *12·9*
	1937-38	310,934	343,161	1,155,223	1,271,979	3,530,207	3,886,122	14·0
Bombay, Baroda and Central India.	*1936-37*	*718,967*	*877,790*	*696,505*	*860,693*	*2,576,064*	*3,149,072*	*10·8*
	1937-38	758,046	924,355	739,360	912,536	2,692,146	3,284,555	11·6
Eastern Bengal	*1936-37*	*635,347*	*787,404*	*469,917*	*581,551*	*3,199,852*	*3,890,010*	*18·4*
	1937-38	680,502	853,348	476,863	590,147	3,280,370	4,059,855	19·1
East Indian	*1936-37*	*604,103*	*753,170*	*1,109,662*	*1,385,512*	*3,819,853*	*4,762,344*	*15·0*
	1937-38	643,595	808,226	1,237,242	1,545,279	4,055,323	5,058,834	16·0
Great Indian Peninsula.	*1936-37*	*424,216*	*530,640*	*611,966*	*765,492*	*2,740,709*	*3,428,279*	*13·9*
	1937-38	423,430	529,657	664,935	831,749	2,851,043	3,566,293	14·0
Madras and Southern Mahratta.	*1936-37*	*599,366*	*538,582*	*691,274*	*726,700*	*3,270,381*	*3,437,976*	*15·4*
	1937-38	603,481	634,434	762,306	801,434	3,385,675	3,559,180	16·1
Nizam's State	*1936-37*	*259,703*	*259,703*	*430,975*	*430,975*	*1,633,716*	*1,633,716*	*7·08*
	1937-38	258,814	258,814	513,607	513,607	1,842,099	1,842,099	7·95
North Western	*1936-37*	*412,258*	*470,575*	*397,526*	*453,725*	*1,820,855*	*2,078,276*	*8·96*
	1937-38	427,217	487,614	429,705	490,454	1,936,780	2,210,600	9·54
South Indian	*1936-37*	*522,895*	*522,895*	*361,066*	*361,066*	*2,262,670*	*2,262,670*	*15·6*
	1937-38	532,057	532,057	365,082	365,082	2,211,100	2,211,100	16·4
Total 5′ 6″ gauge	*1936-37*	*479,095*	*562,238*	*697,291*	*818,564*	*2,770,343*	*3,252,165*	*12·3*
	1937-38	508,741	590,254	772,412	906,866	2,935,332	3,446,380	13·1
3′ 3⅜″ Gauge								
Assam Bengal	*1936-37*	*264,434*	*264,434*	*196,776*	*196,776*	*949,966*	*949,966*	*8·86*
	1937-38	265,240	265,785	202,865	202,948	1,055,850	1,057,836	9·70
Bengal and North Western.	*1936-37*	*504,502*	*506,819*	*312,914*	*316,355*	‡*1,251,430*	‡*1,257,176*	*11·6*
	1937-38	555,749	558,208	309,800	311,223	1,290,083	1,295,835	12·6
Bombay, Baroda and Central India.	*1936-37*	*455,746*	*456,282*	*367,230*	*367,833*	*1,308,167*	*1,362,037*	*10·5*
	1937-38	484,402	485,076	380,885	381,082	1,408,082	1,408,613	11·3
Burma	*1936-37*	*214,393*	*225,922*	*295,132*	*322,705*	*1,097,969*	*1,206,225*	*9·24*
	1937-38	†	†	†	†	†	†	†

(a) Represents actual figures of Gross ton miles and Train miles from April to November 1936 and March 1937 and three months figures for December 1935 and January and February 1936—figures for these three months in 1936-37 not being available due to labour unrest.

† Figures not furnished due to separation.

‡ Revised figures.

APPENDIX VI (e)

—*Statement of Density of Traffic on Class I Railways for the years 1936-37 and 1937-38*—concld.

Railway.	Year.	Passenger miles per annum, (Including Departmental.)		Net ton miles per annum. (Including Departmental.)		Gross ton miles per annum. (Including Departmental and weight of engine).		Train miles per running track mile per day. (Including Departmental.)
		Per running track mile.	Per route mile.	Per running track mile.	Per route mile.	Per running track mile.	Per route mile.	
1	2	3	4	5	6	7	8	9
3′ 3⅜″ Gauge—concld.								
Eastern Bengal .	*1936-37* .	*296,329*	*299,024*	*249,054*	*250,747*	*1,440,143*	*1,449,935*	*11·5*
	1937-38 .	454,119	457,207	246,546	248,222	1,518,213	1,528,536	12·2
Jodhpur . .	*1936-37* .	*193,849*	*193,849*	*179,270*	*179,270*	*706,450*	*706,450*	*5·64*
	1937-38 .	198,886	198,886	176,299	176,299	703,364	703,364	5·70
Madras and Southern Mahratta.	*1936-37* .	*225,252*	*225,376*	*204,330*	*204,443*	*1,033,071*	*1,033,643*	*9·98*
	1937-38 .	260,282	260,431	217,388	217,512	1,064,412	1,065,020	10·5
Nizam's State .	*1936-37* .	*270,793*	*278,107*	*138,614*	*142,358*	*677,701*	*696,005*	*6·27*
	1937-38 .	275,234	282,669	150,202	154,259	712,695	731,944	7·00
Rohilkund and Kumaon.	*1936-37* .	*301,451*	*302,065*	*195,205*	*195,602*	*817,521*	*819,185*	*9·32*
	1937-38 .	315,934	316,577	185,811	186,189	841,166	842,879	10·7
South Indian .	*1936-37* .	*542,577*	*553,581*	*160,462*	*163,720*	*1,180,411*	*1,204,351*	*15·8*
	1937-38 .	584,379	596,239	177,585	181,193	1,277,124	1,303,043	16·6
Total 3′ 3⅜″ Gauge .	*1936-37* .	*354,976*	*361,779*	*245,189*	*252,946*	*1,117,729*	*1,139,151*	*10·3*
	1937-38‡ .	409,238	411,770	246,662	248,389	1,158,635	1,165,806	11·1
2′ 6″ and 2′ 0″ Gauges.								
Bengal Nagpur .	*1936-37* .	*85,274*	*85,274*	*49,474*	*49,474*	(a) *356,726*	(a)*356,726*	(a) *5·25*
	1937-38 .	87,726	87,726	58,402	58,402	376,494	376,494	5·51
Bombay, Baroda and Central India.	*1936-37* .	*126,618*	*126,618*	*29,392*	*29,392*	*187,478*	*187,478*	*5·29*
	1937-38 .	128,158	128,158	29,991	29,991	191,383	191,383	5·35
Eastern Bengal .	*1936-37* .	*168,091*	*168,091*	*2,029*	*2,029*	*167,529*	*167,529*	*8·44*
	1937-38 .	176,000	176,000	2,013	2,013	197,865	197,865	8·98
Great Indian Peninsula	*1936-37* .	*38,268*	*38,268*	*30,828*	*30,828*	*232,738*	*232,738*	*5·69*
	1937-38 .	54,513	54,513	27,491	27,491	238,097	238,097	5·47
North Western .	*1936-37* .	*48,666*	*48,655*	*35,043*	*35,043*	*231,312*	*231,312*	*4·39*
	1937-38 .	55,077	55,077	41,237	41,237	259,549	259,549	4·74
South Indian .	*1936-37* .	*167,997*	*167,997*	*14,348*	*14,348*	*298,694*	*298,694*	*9·40*
	1937-38 .	165,290	165,290	17,224	17,224	285,653	285,653	9·49
Total 2′ 6″ and 2′ 6″ Gauges.	*1936-37* .	*78,011*	*78,011*	*38,229*	*38,229*	*281,379*	*281,379*	*5·29*
	1937-38 .	82,980	82,980	43,838	43,838	298,184	298,184	5·44
Total Class I Railways	*1936-37* .	*413,638*	*456,639*	*508,250*	*554,464*	*2,049,278*	*2,262,330*	*11·2*
	1937-38‡	449,430	496,301	563,357	622,110	2,218,921	2,450,333	12·0

(a) See explanation on page 144.

‡ Exclusive of Burma Railways due to Separation.

EBCRAccts

APPENDIX VII

CALES SÈCHES, DOCKS FLOTTANTS, PONTONS, CALES DE HALAGE, ETC.

PORT.	NOMS DES DOCKS, PONTONS, CALES DE HALAGE.	CALES SÈCHES ET DOCKS FLOTTANTS.				PONTONS, CALES DE HALAGE, GRILS DE CARÉNAGE, ETC.						PROPRIÉTAIRES.	AUTRES DÉTAILS.
		Longueur extrême — Longueur au fond.	Largeur à l'entrée.	Hauteur du seuil au-dessus du fond du Dock.	Hauteur d'eau sur le seuil aux marées hautes de vives-eaux ordinaires.	Longueur extrême.	Largeur du Ber.	Tirant d'eau sur les tins aux marées hautes de vives-eaux ordinaires. À l'avant.	À l'arrière.	Puissance de soulèvement.	Différence entre les marées hautes de vives-eaux et de mortes-eaux ordinaires.		
ASIA—*continued.*													*Voye:* note en bas.
INDIA—*continued.*													
		ft. in.	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*ft. in.*	*Tons.*	*ft. in.*		
Calcutta	**Kidderpore Docks Graving Dock No. 1.....**	549·0 538·9	69·6	2·0	25·0	...	...	...	...	...	...	**Port Commissioners**	Not affected by tides, being entered from Basin of Port Commissioners' Wet Dock
do.	**do. No. 2......**	499·6 488·6	69·6	...	27·0	...	...	...	...	...	...	**do.**	
do.	**do. No. 3.....**	350·0 337·6	60·0	2·0	23·0	...	...	...	...	...	...	**do.**	
do.	**Kidderpore Dry Dock for small craft**	221·8 217·6	45·6	2·9	17·0	...	...	...	...	...	...	**do.**	
do.	**Kidderpore Slipway for small craft**	...	...	...	...	330·0	75·0	9·0	14·0	...	14·0	**do.**	
do.	**King George's Dock Graving Dock No. 1 ...**	574·0	80·0	0·6	36·0	...	...	...	...	...	...	**do.**	Not affected by tides. Entrance in Wet Dock.
do.	**do. No. 2 ...**	589·0	80·0	0·6	36·0	...	...	...	...	...	...	**do.**	
do.	**Hooghly Dry Dock ....**	310·0 305·0	43·9	1·9	16·8	...	...	...	...	...	6·0	**Hooghly Docking & Eng. Co., Lim.**	24ft. 8ins.; 10ft. 8ins. The lowest neap tides take place in January and February. In August and September there would be an additional depth of (from 11 to 14 feet (highest spring tides). The difference between ordinary springs and neaps in January and February is 6 to 7 feet.
do.	**Patent Slip ....**	...			...	620·0	255·0	5·0	12·0	600	6·0	**India Gen. Nav. & Railwy. Co., Lim.**	Cradle telescope 36 feet according to height of tide.
do.	**do. ....**	..		..	..	625·0	255·0	5·0	13·0	800	6·0	**do. do.**	Cradle telescopes 40 feet according to height of tide.
do.	**do. ....**	..			..	640·0	250·0	5·0	15·0	1000	6·0	**Garden Reach Workshops**	Cranes; 6 and 12 tons.
do	**do. ....**	..			...	640·0	240·0	5·6	15·6	600	6·0	**do. do.**	Fitted with transverse carriage and 2 side berths—accommodation for 3 vessels; 2 side berths, respectively 260 ft. & 180 ft. extreme length & 68 ft. & 40 ft width
do.	**do. ....**	...	..	..	...	300·0	80·0	2·8	12·0	120	6·0	**do. do.**	
do.	**Dry Dock ....**	600·0	66·0	1·6	7·6	...	...	...	...	...	6·0	**India Gen. Nav. & Railway Co., Lim.**	Fitted with gates. Only suitable for light river craft.
do.	**do. ....**	400·0	65·0	...	4·6	...	...	...	...	...	6·0	**do. do.**	No gates. Mud bund only.
do.	**do. ....**	350·0	59·6	1·6	7·6	...	...	...	...	...	6·0	**Garden Reach Workshops**	Fitted with gates.
do.	**do. ....**	500·0	59·6	1·6	7·6	...	...	...	...	...	6·0	**do. do.**	Fitted with gates.
Calicut	**Nil ....**	...	...	...	...	...		..	..	...	...		
Calingapatam	**Nil ....**	...		...	...	...		...	..	...	...		
Cannanore	**Nil ....**	...		..		...	...	...	..	...	...		
Chittagong	**Slipway ....**			...	...	215·0	68·0	6·6	12·6	150	4·0	**Port Commissioners**	

R&A - 723
Bengal & Sikkim
14 Maps & Charts

73

R&A #722
Survey of Canton Island
Maps

71

APPENDIX VIII

Calcutta: Ship Chandlers

Balailal Mookerjee & Co.	25 Swallow Lane
Calcutta Stores & Supply Agency	24 Raja Woodmunt St.
P. Ghose & Co.	41 Strand Road
Manmatha Nath Banerjee & Co.	31a Goa Bagan Lane
Mitra Bros.	98 Clive St.
J. N. Mookerjee	20 Strand Road
S. N. Sircar & Co.	41 Strand Road

Calcutta: Stevedores

S. C. Banerjee	44 Fern Road
Bannerjee Santos Chandra Sons, Ltd.	Ballygunge
B. Bose & Co.	20 Strand Road
Chatterjee & Co.	3 Mangoe Lane
A. C. Chowdhury & Son	1/4 Hemchandra St., Kidderpore
M. Elias	Central Bank Bldgs. 100 Clive St.
D. Gaiety & Co.	5 Church St.
Md. A. Majid	8 Hemchandra St., Kidderpore
Balailal Mookerjee	25 Swallow Lane
A. C. Roy & Co.	1/4 Hemchandra St., Kidderpore

Calcutta: Contractors

Veal, etc.	Sk. Nabi Bux
Fish	Gosto Behary Biswas
Eggs	Abdul Mozid
Beef	H. Sk. Fazlur Rahman
Potatoes and onions	Dhurendra Nath Shuba
Fruit	Mohammad Salim & Bros.
Game and poultry	Shaik Abdul Wahab & Ali Tan
Vegetables	Nilmony Hadait
Mutton and lamb	Shaik Payaroo -- Jubilee Farm
General	N. C. Dutt & Co., Dalhousie Square Calcutta Cold Storage Co., Hide Road

APPENDIX IX

CALCUTTA: Exports and Imports, 1938-39

Exports

Commodity	Tons
Coal	2,875,587
Cotton	6,615
Gunnies	1,014,204
Hides	14,408
Hemp	35,584
Iron, "pig"	517,510
Iron Ore	425,376
Jute	646,200
Lac	37,149
Linseed	123,924
Manganese	150,995
Manure	42,516
Mica	7,281
Molasses in bulk	55,577
Myrabollam	27,005
Other ores	30,240
Oil-cake	31,310
Rice	148,509
Saltpetre	7,288
Scrap Iron	61,070
Scrap Tin	90
Seeds	47,562
Skins	8,889
Sugar	11,724
Tea	99,755
Sundries	298,962
TOTAL	6,725,350

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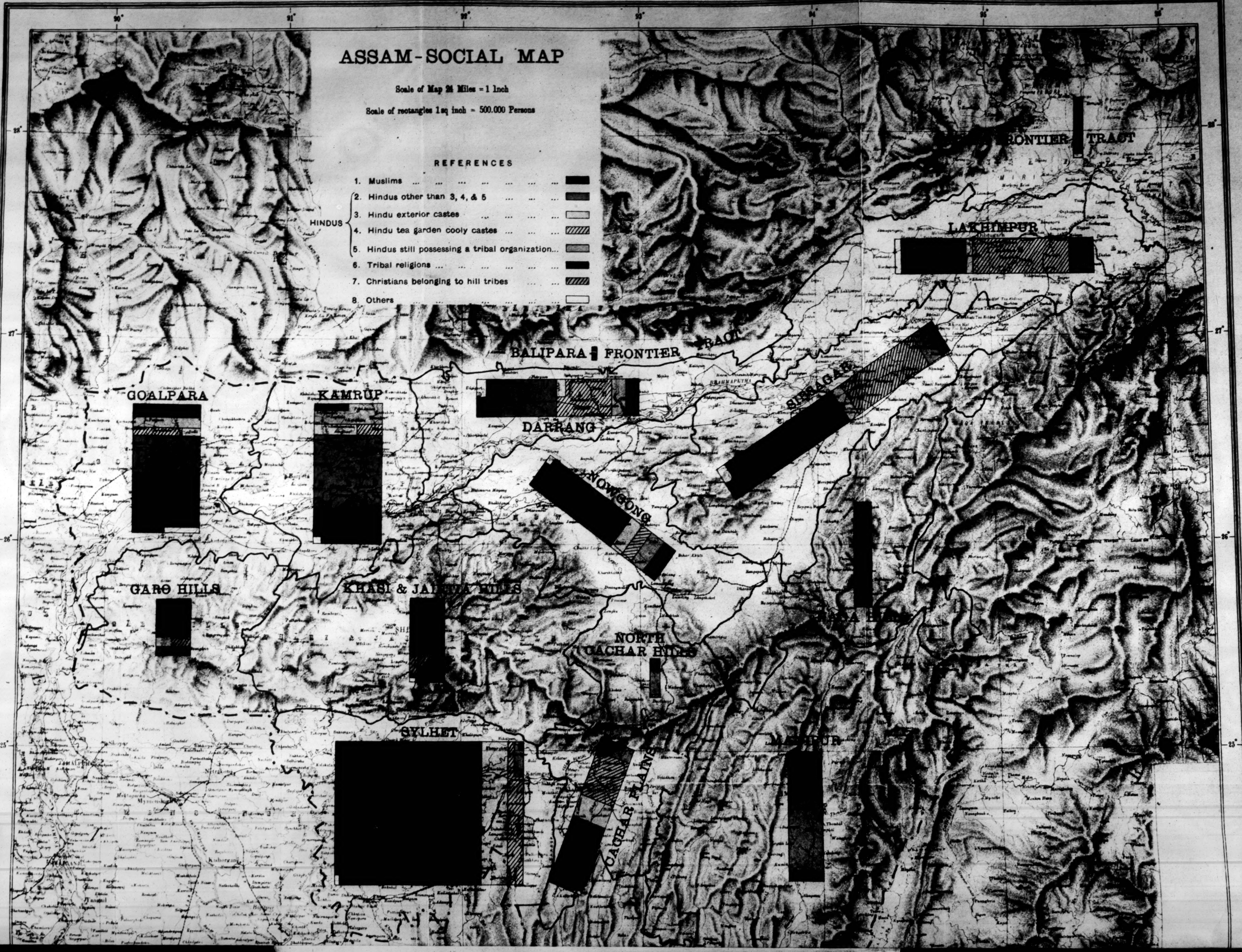
Seeds	47,562
Skins	8,889
Sugar	11,724
Tea	99,755
Sundries	298,982
TOTAL	6,725,350

Imports

Commodities	Tons
Asphalte, Pitch Dammer, etc.	13,376
Beer and Port	9,750
Betelnuts	54,101
Brass	3,416
Brimstone and Sulphur	17,143
Cement	2,309
Copper	7,766
Cotton Piece Goods and Yarn	97,074
Glassware	21,183
Hardware	28,788
Iron Wrought	11,868
Iron Galvanized	10,644
Lead	4,862
Machinery	102,476
Manure	54,303
Matches	355
Medicines and Chemicals	35,563
Motor Cars	16,040
Nails	1,588
Oilman's Stores	16,728
Oil of all kinds	65,020
Paint and Varnish	9,955
Petroleum	393,773
Rice	186,744
Salt	471,749
Seeds	40,780
Silver	200
Soap	1,630
Soda	13,352
Spirits and Wines	2,291
Steel	81,202
Sugar	2,285
Tea Shooks	20,974
Timber	99,574
Tin Plates	6,343
Wheat	103,320
Wire	10,789
Sundries	452,377
TOTAL	2,471,691

Due to its large size, the following document has been filmed in segments. The order of the segments is as follows: left to right, top to bottom.


ASSAM-SOCIAL MAP
Scale of Map 24 Miles = 1 Inch
Scale of rectangles 1 sq inch = 500.000 Persons
REFERENCES
1. Muslims
HINDUS
2. Hindus other than 3, 4, & 5
3. Hindu exterior castes
4. Hindu tea garden cooly castes
5. Hindus still possessing a tribal organization
6. Tribal religions
7. Christians belonging to hill tribes
8. Others
FRONTIER TRACT
LAKHIMPUR
BALIPARA FRONTIER TRACT
GOALPARA
KAMRUP
DARRANG
SIBSAGAR
NOWGONG
GARO HILLS
KHASI & JAINTIA HILLS
NORTH CACHAR HILLS
SYLHET
CACHAR PLAINS
MANIPUR
90°
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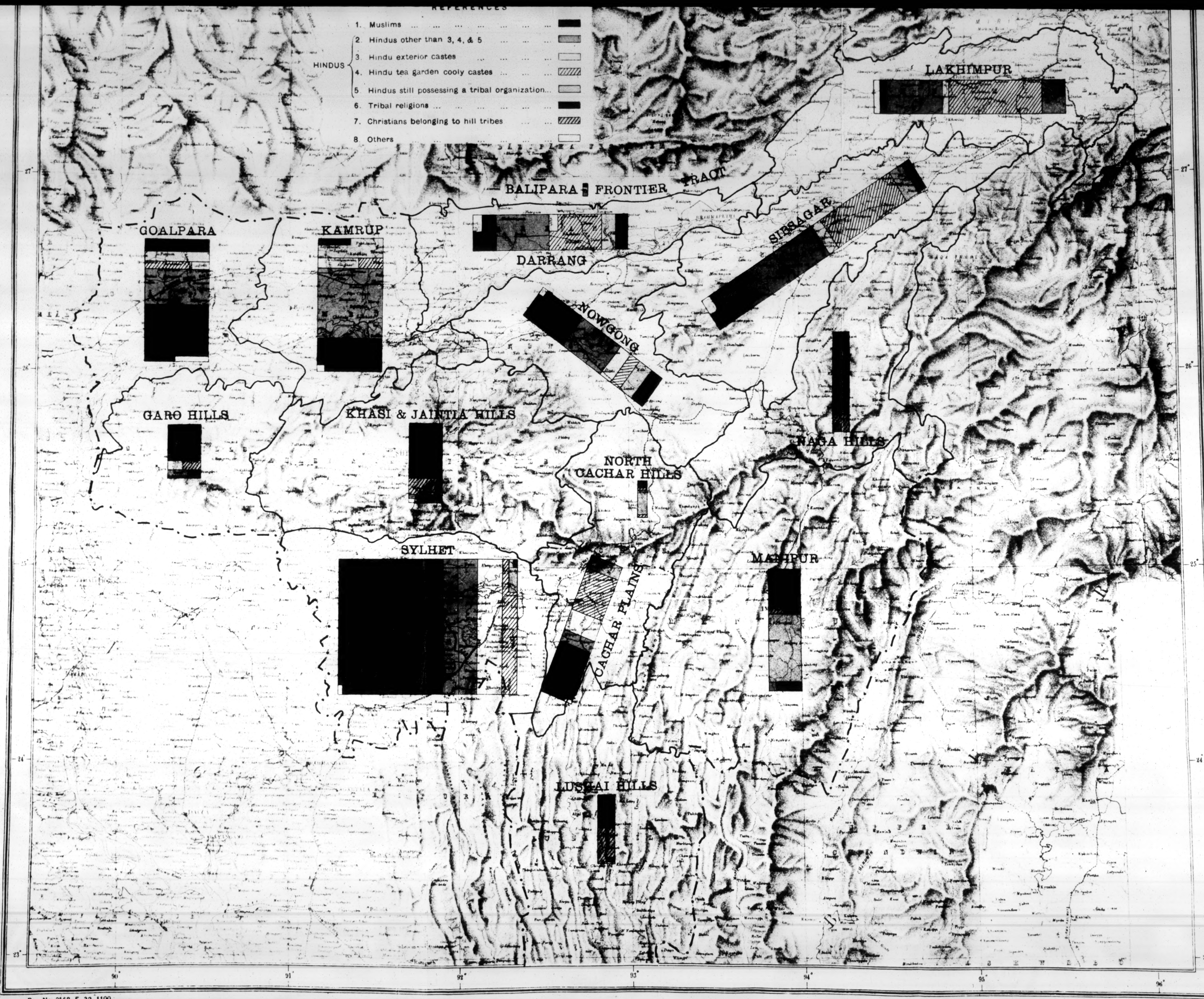
REFERENCES
1. Muslims ... ...
HINDUS
2. Hindus other than 3, 4, & 5 ... ...
3. Hindu exterior castes ... ...
4. Hindu tea garden cooly castes ... ...
5 Hindus still possessing a tribal organization...
6. Tribal religions ... ...
7. Christians belonging to hill tribes ... ...
8. Others ... ...
LAKHIMPUR
BALIPARA FRONTIER TRACT
GOALPARA
KAMRUP
DARRANG
SIBSAGAR
NOWGONG
GARO HILLS
KHASI & JAINTIA HILLS
NAGA HILLS
NORTH CACHAR HILLS
SYLHET
CACHAR PLAINS
MANIPUR
LUSHAI HILLS
27°
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Reg. No. 2568 E. 32. 1100.

Heliozincographed at the Survey of India Offices, Calcutta

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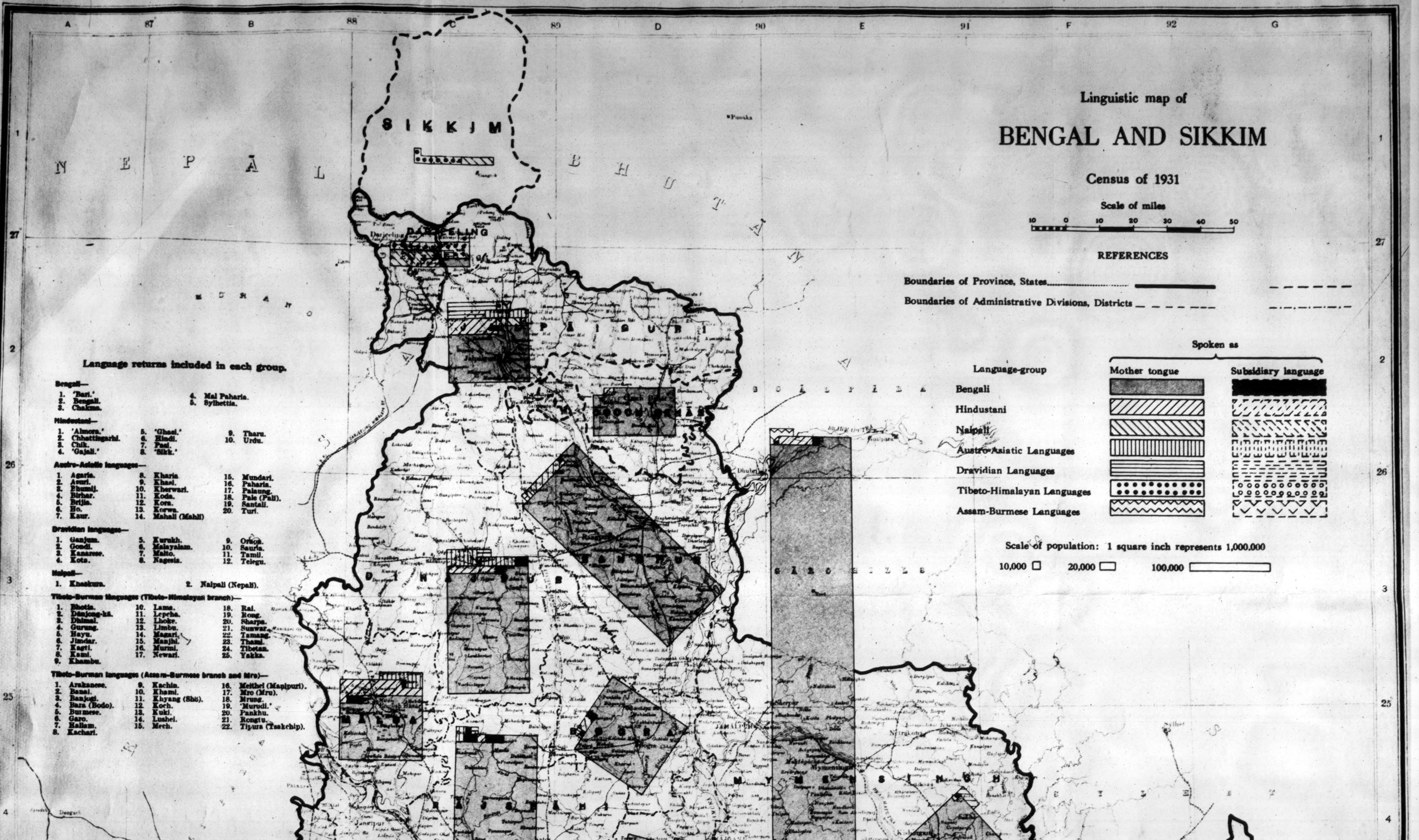
SIKKIM
NEPĀL
BHUTĀN
DARJEELING
JALPĀIGURI
COOCH BEHĀR
DINĀJPUR
RANGPUR
GĀRO HILLS
GOĀLPĀRA
MĀLDA
BOGRA
RĀJSHĀHI
MYMENSINGH
MURSHIDĀBĀD
PABNA
BIRBHUM
NADIA
DACCA
SYLHET
TRIPURA
LUSHAI HILLS
BURDWĀN
JESSORE
BĀNKURA
Punakha
Dhubri
A
B
C
D
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5

Linguistic map of

BENGAL AND SIKKIM

Census of 1931

Scale of miles

10 0 10 20 30 40 50

REFERENCES

Boundaries of Province, States

Boundaries of Administrative Divisions, Districts

Spoken as

Language-group	Mother tongue	Subsidiary language
Bengali		
Hindustani		
Naipali		
Austro-Asiatic Languages		
Dravidian Languages		
Tibeto-Himalayan Languages		
Assam-Burmese Languages		

Scale of population: 1 square inch represents 1,000,000

10,000 ☐ 20,000 ☐ 100,000 ☐

Language returns included in each group.

Bengali—

1. 'Bari.'
2. Bengali.
3. Chakma.
4. Mal Paharia.
5. Sylhettia.

Hindustani—

1. 'Almora.'
2. Chhattisgarhi.
3. Chik.
4. 'Gajali.'
5. 'Ghasi.'
6. Hindi.
7. Pasi.
8. 'Sikk.'
9. Tharu.
10. Urdu.

Austro-Asiatic languages—

1. Agaria.
2. Asuri.
3. Bhumij.
4. Birhar.
5. Brijia.
6. Ho.
7. Kaur.
8. Kharia.
9. Khasi.
10. Kherwari.
11. Koda.
12. Kora.
13. Korwa.
14. Mahali (Mahli)
15. Mundari.
16. Paharia.
17. Palaung.
18. Pale (Pali).
19. Santali.
20. Turi.

Dravidian languages—

1. Ganjum.
2. Gondi.
3. Kanarese.
4. Kota.
5. Kurukh.
6. Malayalam.
7. Malto.
8. Nagesia.
9. Oraon.
10. Sauria.
11. Tamil.
12. Telegu.

Naipali—

1. Khaskura.
2. Naipali (Nepali).

Tibeto-Burman languages (Tibeto-Himalayan branch)—

1. Bhotia.
2. Dānjong-kā.
3. Dhimal.
4. Gurung.
5. Hayu.
6. Jimdar.
7. Kagti.
8. Kami.
9. Khambu.
10. Lama.
11. Lepcha.
12. Lhoke.
13. Limbu.
14. Magari.
15. Manjhi.
16. Murmi.
17. Newari.
18. Rai.
19. Rong.
20. Sharpa.
21. Sunwar.
22. Tamang.
23. Thami.
24. Tibetan.
25. Yakka.

Tibeto-Burman languages (Assam-Burmese branch and Mro)—

1. Arakanese.
2. Banai.
3. Banjugi.
4. Bara (Bodo).
5. Burmese.
6. Garo.
7. Hallam.
8. Kachari.
9. Kachin.
10. Khami.
11. Khyang (Shō).
12. Koch.
13. Kuki.
14. Lushei.
15. Mech.
16. Meithei (Manipuri).
17. Mro (Mru).
18. Mrung.
19. 'Murudi.'
20. Pankhu.
21. Rongtu.
22. Tipura (Tsakchip).

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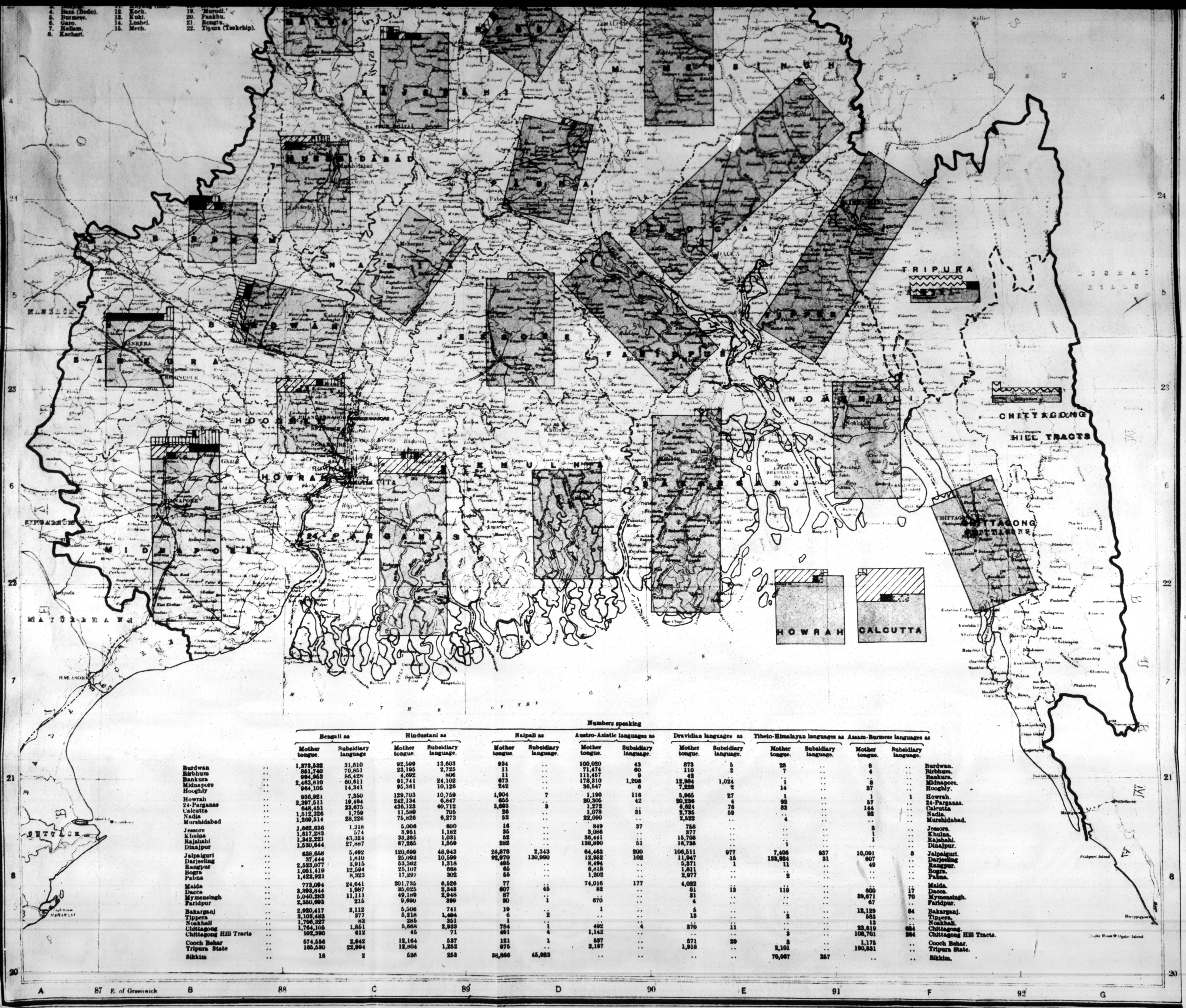
4. Bara (Bodo).
5. Burmese.
6. Garo.
7. Hallam.
8. Kachari.
12. Koch.
13. Kuki.
14. Lushei.
15. Mech.
19. 'Murudi.'
20. Pankhu.
21. Rongtu.
22. Tipura (Tsakchip).
MURSHIDABAD
PABNA
NADIA
BURDWAN
BANKURA
JESSORE
FARIDPUR
HOOGHLY
HOWRAH
KHULNA
BAKARGANJ
NOAKHALI
MIDNAPORE
24 PARGANAS
TIPPERA
TRIPURA
CHITTAGONG HILL TRACTS
CHITTAGONG
HOWRAH
CALCUTTA
MOUTHS OF THE GANGES
A
87 E. of Greenwich
B
88
C
89
D
90
E
91
F
92
G
4
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21
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23
24

Numbers speaking

	Bengali as		Hindustani as		Naipali as		Austro-Asiatic languages as		Dravidian languages as		Tibeto-Himalayan languages as		Assam-Burmese languages as		
	Mother tongue.	Subsidiary language	Mother tongue.	Subsidiary language.	Mother tongue.	Subsidiary language.	Mother tongue.	Subsidiary language.	Mother tongue.	Subsidiary language.	Mother tongue.	Subsidiary language.	Mother tongue.	Subsidiary language.	
Burdwan	1,373,532	31,610	92,599	13,603	934	..	100,020	43	873	5	28	..	8	..	Burdwan.
Birbhum	851,740	70,851	23,195	2,725	11	..	71,474	60	110	2	7	..	4	..	Birbhum.
Bankura	994,953	86,428	4,692	806	11	..	111,457	9	42	..	..	..	..	..	Bankura.
Midnapore	2,463,810	60,611	91,741	24,102	673	..	178,310	1,206	12,984	1,024	1	..	8	..	Midnapore.
Hooghly	964,105	14,341	95,361	10,126	242	..	36,547	6	7,228	2	14	..	37	..	Hooghly.
Howrah	936,921	7,350	129,703	10,759	1,904	7	1,190	116	5,965	27	1	..	1	1	Howrah.
24-Parganas	2,397,511	19,494	242,134	6,847	655	..	20,305	42	20,236	4	92	..	57	..	24-Parganas.
Calcutta	648,451	23,675	436,123	40,712	3,693	3	1,272	..	6,624	76	83	..	144	..	Calcutta
Nadia	1,512,326	1,759	11,589	705	26	..	1,078	31	2,735	59	..	..	92	..	Nadia.
Murshidabad	1,269,514	28,226	75,826	6,273	52	..	22,090	..	2,522	..	4	..	..	..	Murshidabad.
Jessore	1,662,636	1,318	5,006	600	16	..	849	37	758	..	..	..	3	..	Jessore.
Khulna	1,617,283	574	3,951	1,182	35	..	3,086	..	377	..	..	..	1	..	Khulna.
Rajshahi	1,342,221	43,324	33,265	1,031	52	..	36,441	..	15,708	..	..	..	1	..	Rajshahi.
Dinajpur	1,530,644	27,887	67,265	1,569	282	..	138,890	51	16,738	..	1	..	..	..	Dinajpur.
Jalpaiguri	638,658	5,492	120,699	48,943	28,878	2,343	64,463	200	106,511	977	7,406	937	10,091	8	Jalpaiguri.
Darjeeling	37,444	1,810	25,093	10,599	92,970	130,990	12,952	102	11,947	15	133,924	31	607	..	Darjeeling
Rangpur	2,523,077	3,915	53,362	1,318	495	..	8,494	..	5,371	1	11	..	49	..	Rangpur.
Bogra	1,051,419	12,594	25,107	668	65	..	6,818	..	1,811	..	..	..	..	..	Bogra.
Pabna	1,422,921	8,323	17,297	302	55	..	1,202	..	2,977	..	2	..	..	..	Pabna.
Malda	773,094	24,641	201,735	6,526	77	..	74,016	177	4,022	..	..	..	..	..	Malda.
Dacca	3,393,844	1,987	35,025	2,343	607	45	82	..	81	13	119	..	600	17	Dacca.
Mymensingh	5,040,283	11,111	49,189	2,948	87	..	..	..	31	..	..	..	39,671	70	Mymensingh.
Faridpur	2,350,693	215	9,690	399	30	1	670	..	4	..	..	..	67	..	Faridpur.
Bakarganj	2,920,417	3,112	5,506	741	19	..	1	..	5	..	..	..	12,129	84	Bakarganj.
Tippera	3,103,483	377	5,218	1,494	6	2	..	..	13	..	2	..	583	..	Tippera.
Noakhali	1,706,327	83	285	351	1	..	..	..	..	..	..	..	13	..	Noakhali.
Chittagong	1,764,105	1,851	5,668	2,933	784	1	492	4	370	11	..	..	23,619	684	Chittagong.
Chittagong Hill Tracts	102,390	612	45	71	491	4	1,142	..	..	..	3	..	106,701	284	Chittagong Hill Tracts.
Cooch Behar	574,556	2,642	12,164	537	121	1	537	..	571	29	3	..	1,175	..	Cooch Behar.
Tripura State	165,530	22,994	12,804	1,252	875	..	2,197	..	1,918	..	2,101	..	190,831	..	Tripura State.
Sikkim	18	2	536	253	38,866	45,923	..	..	..	..	70,067	257	..	..	Sikkim.

Reg. No. 2911. E. 32 -1900

Heliozincographed at the Survey of India Offices, Calcutta

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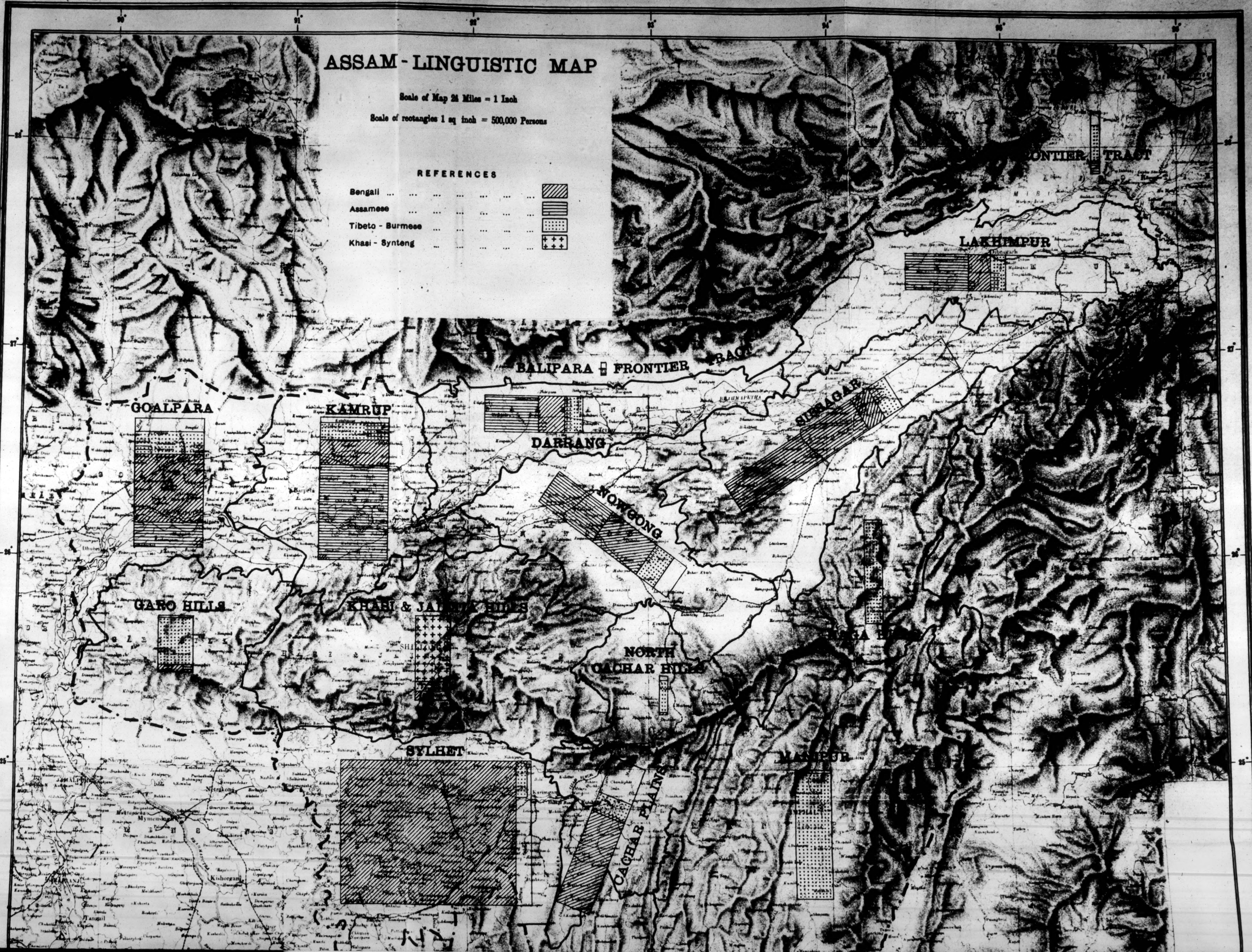
ASSAM - LINGUISTIC MAP

Scale of Map 24 Miles = 1 Inch

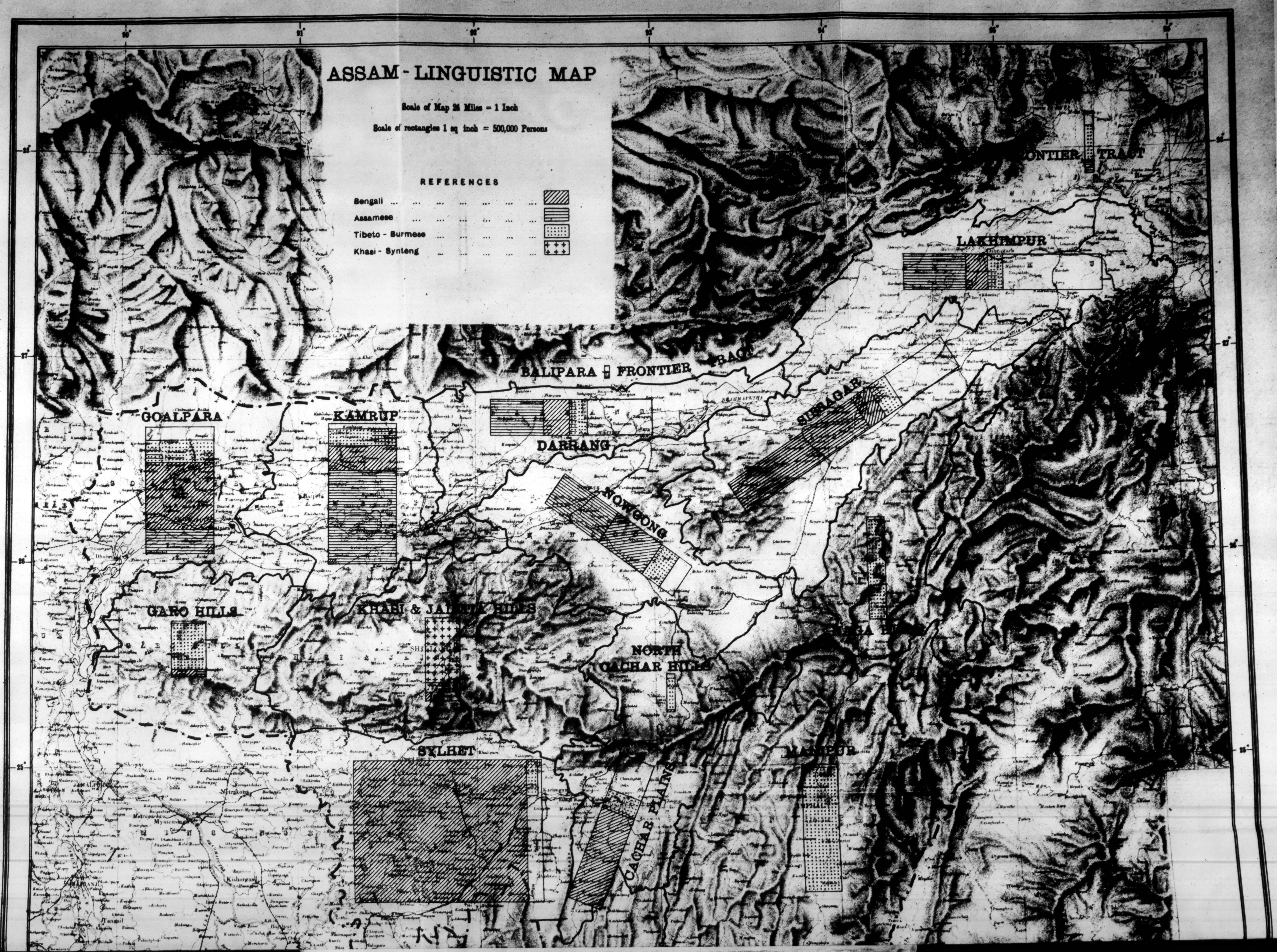
Scale of rectangles 1 sq inch = 500,000 Persons

REFERENCES

Bengali	▨
Assamese	▤
Tibeto - Burmese	⠿
Khasi - Synteng	✚


FRONTIER TRACT
LAKHIMPUR
BALIPARA FRONTIER TRACT
GOALPARA
KAMRUP
DARRANG
SIBSAGAR
NOWGONG
GARO HILLS
KHASI & JAINTIA HILLS
NAGA HILLS
NORTH CACHAR HILLS
SYLHET
CACHAR PLAINS
MANIPUR
90°
91°
92°
93°
94°
95°
96°
26°
27°
25°

DECLASSIFIED: Unless specifically marked



ASSAM - LINGUISTIC MAP

Scale of Map 24 Miles = 1 Inch

Scale of rectangles 1 sq inch = 500,000 Persons

REFERENCES

Bengali ... ... ▨

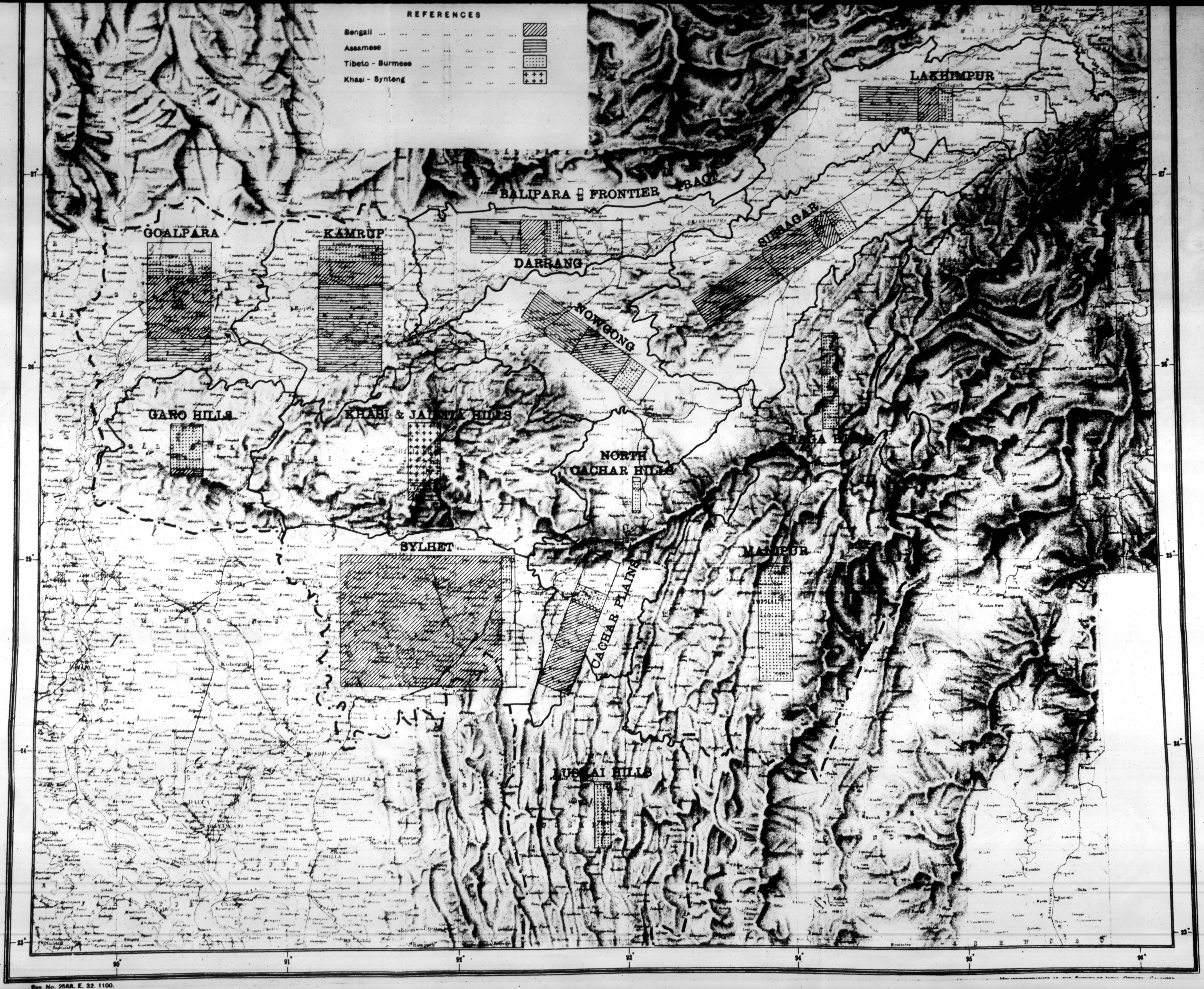
Assamese ... ... ☰

Tibeto - Burmese ... ... ⠿

Khasi - Synteng ... ... ✚

FRONTIER TRACT
LAKHIMPUR
BALIPARA FRONTIER TRACT
SIBSAGAR
GOALPARA
KAMRUP
DARRANG
NOWGONG
GARO HILLS
KHASI & JAINTIA HILLS
NAGA HILLS
NORTH CACHAR HILLS
SYLHET
MANIPUR
CACHAR PLAINS

DECLASSIFIED: Unless specifically marked, reports dated through 1945


REFERENCES
Bengali ... ... ▨
Assamese ... ... ☰
Tibeto - Burmese ... ... ⁘
Khasi - Synteng ... ... ✚
LAKHIMPUR
BALIPARA FRONTIER TRACT
GOALPARA
KAMRUP
DARRANG
SIBSAGAR
NOWGONG
GARO HILLS
KHASI & JAINTIA HILLS
NAGA HILLS
NORTH CACHAR HILLS
SYLHET
MANIPUR
CACHAR PLAINS
LUSHAI HILLS
27°
26°
25°
24°
23°
90°
91°
92°
93°
94°
95°
96°

Reg. No. 2568. E. 32. 1100.

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BENGAL (Districts)	Textiles				Engineering				Minerals and Metals				Food, Drink, and Tobacco				Chemicals, Dyes Skins, Hides				Paper, printing, wood, stone, glass, miscellaneous			
	No. of Workers	Chief Industry	No. of Workers	No. of Factories	No. of Workers				No. of Workers															
Calcutta	1,959	Jute Presses Hosiery	1,805 116	2	2,870	Eng., general (957) Mint Coach bldg. Car repair	957 818 652	10 1 9	58	Misc.	58	2	936				794	Oil mills	698	11	8,019	Printing, etc.	7,387	83
24 Parganas	194,819	Jute mills Jute presses Cotton mills Silk mills Cotton ginning	167,324 13,485 10,631 1,817 887	56 24 8 5 3	42,681	Eng., general Dockyards and ship eng. Ordnance R'way wkshps.	11,804 8,985 6,845 5,205	62 5 3 5	461	Lead smelting and rolling Iron smelting and steel rolling	252 199	1 3	9,637	Rice mills Tobacco	6,116 1,440	124 4	16,145	Matches Leather and shoe Chemicals Gas Works	5,276 3,344 2,984 690	13 2 11 3	20,945	Rubber goods Paper mills Cement, etc. Printing Glass	3,955 3,601 1,543 1,512	15 2 6 9 7
Nadia	2,640	Cotton mill	2,640	1	42	Eng., general	42	2																
Murshidabad													694	Sugar	694	2	59							
Khulna	146	Cotton mill	146	1																				
Jessore																								
Burdwan	48	Hosiery	48	1	3,940	Eng., general Rwy. Wkshps. Elec. power	2,570 939 280	8 4 2	14,544	Iron and steel at Kulti and Burnpur	14,544	2	2,377	Rice mills	2,175	52	357				3,542	Paper mills Cement, etc.	1,833 1,336	1 4
Birbhum													2,160	Rice mills	2,160	52	85							
Bankura					12								484	Rice mills	484	16	66							
Midnapore					8,686	Rwy. Wkshps. Elec. power	8,132 478	4 1					2,657	Rice mills	2,657	57	108							
Hooghly	56,105	Jute mills Cotton mills	49,913 6,089	16 6	324	Eng., general	324	1					938	Rice mills	938	29	985				966	Rubber goods	880	1
Howrah	73,956	Jute mills Cotton mills Jute Presses Hosiery	61,797 7,229 3,495 1,010	25 9 8 12	24,931	Eng., general Shpbldg. and eng. Rwy. wkshps.	8,705 7,869 6,548	71 10 7	835 ?	Iron and steel Aluminum (under 500)	505	1 1	1,880	Rice mills Flour mills	1,008 761	17 4	1,884	Paints Oil mills	759 456	3 4	3,209	Rope works Rubber goods Glass	986 710 428	5 3 3
Dacca	12,433	Jute presses Cotton mills Cotton ginning Woollen mill	7,019 4,712 524 178	24 4 1 1	1,196	Eng., general Dockyards Rwy. wkshp.	564 248 229	4 1 1					333	Sugar	200	1	29				911	Glass	411	2
Mymensingh	1,841	Jute presses	1,841	9	94								29											
Faridpur	214	Jute presses	214	2	48																			
Bakarganj					649	Eng., general	649	2					167				34							
Chittagong	1,054	Cotton ginning	1,054	4	3,001	Rwy. wkshps. Kerosene tinning Eng., general Elec. power	2,112 304 235 231	1 2 3 1					631	Tea	631	13	37				197			
Tippera	3,670	Jute presses	3,670	18																				
Noakhali	433	Jute presses	433	1																				
Rajshahi					10								456	Sugar	404	2								
Dinajpur													2,699	Rice mills Sugar	1,929 770	34 4	51							
Jalpaiguri	69	Jute presses	69	1	289	Rwy. wkshp.	216	1					13,691	Tea	13,313	150	39				27			
Rangpur	143	Jute presses	143	1	2,728	Rwy. wkshp. Eng., general Elec. eng.	2,429 154 145	2 1 2					215											
Bogra													74											
Pabna	1,326	Jute presses Hosiery	816 510	6 9																				
Malda													128											
Darjeeling	57	Jute presses	57	1	387	Rwy. wkshp. Elec. eng.	335 35	1 1					5,206	Tea	4,960	128					285			
ASSAM (Districts)																								
Cachar					51			2					3,994	Tea	3,994	74								
Sylhet					182	General eng. School Wkshp.	104 78	1 1					7,230	Tea	7,230	110	50	Oil mill	50	1	185	Saw mills	168	2
Khasi and Jaintia Hills					146	School wkshp. Car repair at Shillong	81 65	1 1													208	Printing presses	208	2
Goalpara	555	Cotton ginning	555	3									428	Tea Rice Ice	382 28 18	7 1 1	363	Matches	363	1				
Kamrup					66			3					704	Tea Rice	370 334	12 13	173	Oil mills	173	4	42	Printing press	42	1
Darrang					42	R.R. wkshp.	42						5,290	Tea	5,284	86	40	Oil mill	40	1				
Nowgong													892	Tea Rice	851 41	18 2								
Sibsagar					324	School wkshp. R.R. wkshp. General eng. Elec. power	143 82 72 27	1 1 5 1					9,302	Tea Rice Sugar	9,231 54 17	148 1 1	156	Oil mills	156	3	67	Printing presses	67	3
Lakhimpur					1,301	General eng. R.R. wkshp. Car repair	677 519 105	4 1 3	2,005	Petroleum Refinery At Digboi (includes power plant)	2,005	2	12,200	Tea Rice	12,148 52	174 3	71	Oil mills	71	2	445	Saw mills Cement Printing press	287 96 62	3 1 2
Sadiya Frontier Tract													55	Tea	55	1					345	Saw mill Sadiya	345	1

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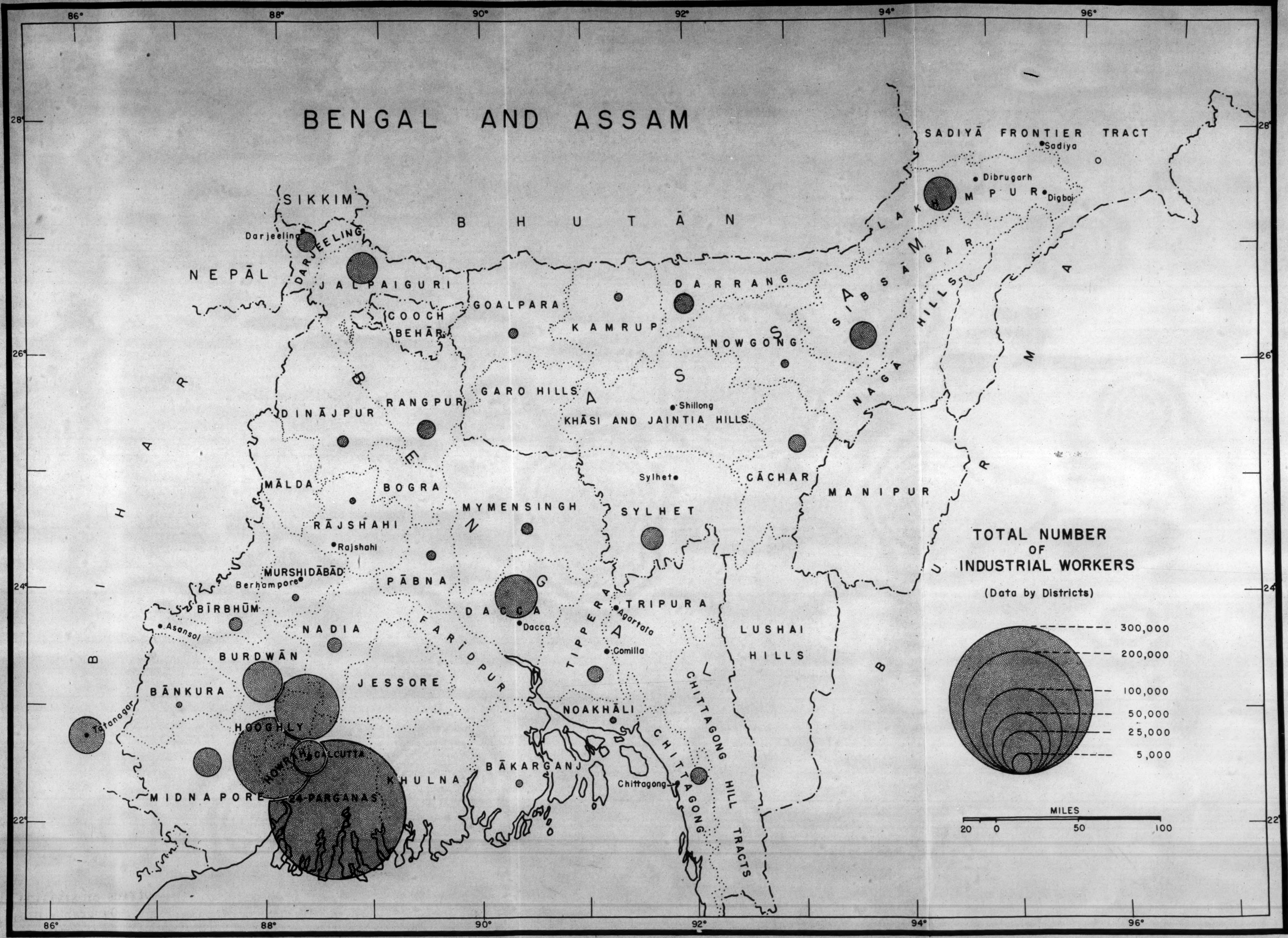

BENGAL AND ASSAM

TOTAL NUMBER OF INDUSTRIAL WORKERS

(Data by Districts)

86°
88°
90°
92°
94°
96°
28°
26°
24°
22°
SIKKIM
NEPĀL
BHUTĀN
SADIYĀ FRONTIER TRACT
Sadiya
Dibrugarh
Digboi
LAKHIMPUR
SIBSĀGAR
NAGA HILLS
DARRANG
KAMRUP
GOALPARA
NOWGONG
ASSAM
Shillong
KHĀSI AND JAINTIA HILLS
GARO HILLS
CĀCHAR
MANIPUR
BURMA
Sylhet
SYLHET
TRIPURA
Agartala
Comilla
TIPPERA
LUSHAI HILLS
NOAKHĀLI
CHITTAGONG
Chittagong
CHITTAGONG HILL TRACTS
Darjeeling
DARJEELING
JALPAIGURI
COOCH BEHĀR
RANGPUR
DINĀJPUR
BENGAL
MĀLDA
BOGRA
RĀJSHĀHI
Rajshahi
MYMENSINGH
MURSHIDĀBĀD
Berhampore
PĀBNA
DACCA
Dacca
BĪRBHŪM
Asansol
NADIA
BURDWĀN
FARĪDPUR
JESSORE
BĀNKURA
HOOGHLY
HOWRAH
CALCUTTA
Tatanagar
KHULNA
BĀKARGANJ
MIDNAPORE
24-PARGANAS
BIHAR
300,000
200,000
100,000
50,000
25,000
5,000
MILES
20
0
50
100

MAP NO. 409 APRIL 4, 1942

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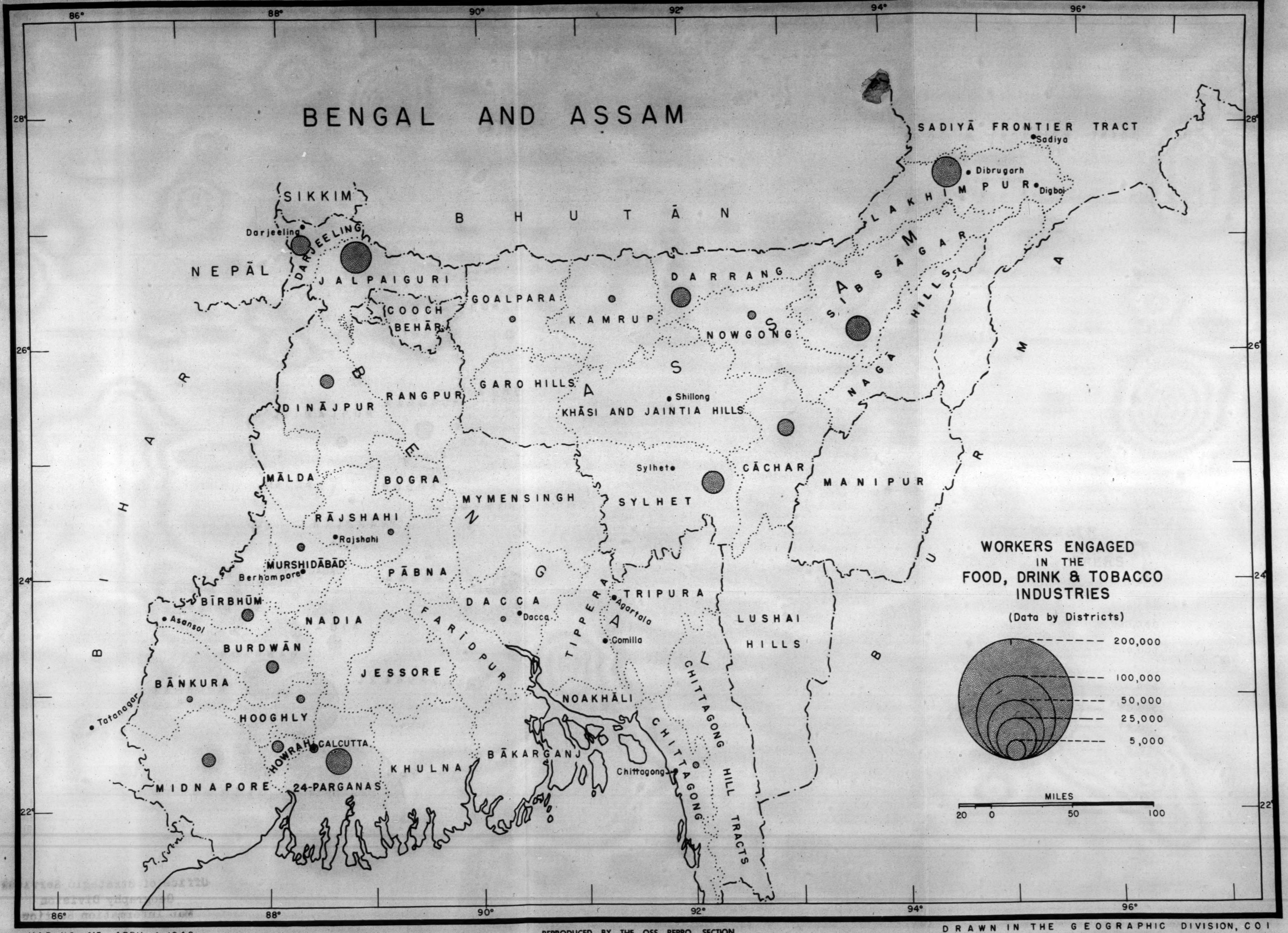

BENGAL AND ASSAM

WORKERS ENGAGED IN THE FOOD, DRINK & TOBACCO INDUSTRIES

(Data by Districts)

86°
88°
90°
92°
94°
96°
28°
26°
24°
22°
SADIYĀ FRONTIER TRACT
Sadiya
Dibrugarh
Digboi
LAKHIMPUR
SIBSĀGAR
NĀGĀ HILLS
ASSAM
SIKKIM
BHUTĀN
Darjeeling
DARJEELING
NEPĀL
JALPAIGURI
GOALPARA
KAMRUP
DARRANG
NOWGONG
COOCH BEHĀR
BIHAR
DINĀJPUR
RANGPUR
GARO HILLS
Shillong
KHĀSI AND JAINTIA HILLS
BENGAL
MĀLDA
BOGRA
MYMENSINGH
Sylhet
CĀCHAR
MANIPUR
SYLHET
BURMA
RĀJSHAHI
Rajshahi
MURSHIDĀBĀD
Berhampore
PĀBNA
TRIPURA
BĪRBHŪM
Asansol
NADIA
DACCA
Dacca
TIPPERA
Agartala
Comilla
LUSHAI HILLS
BURDWĀN
FARIDPUR
JESSORE
BĀNKURA
NOAKHĀLI
CHITTAGONG
CHITTAGONG HILL TRACTS
HOOGHLY
Tatanagar
HOWRAH
CALCUTTA
BĀKARGANJ
Chittagong
KHULNA
MIDNAPORE
24-PARGANAS
200,000
100,000
50,000
25,000
5,000
MILES
20
0
50
100

MAP NO. 413 APRIL 4, 1942

REPRODUCED BY THE OSS REPRO. SECTION

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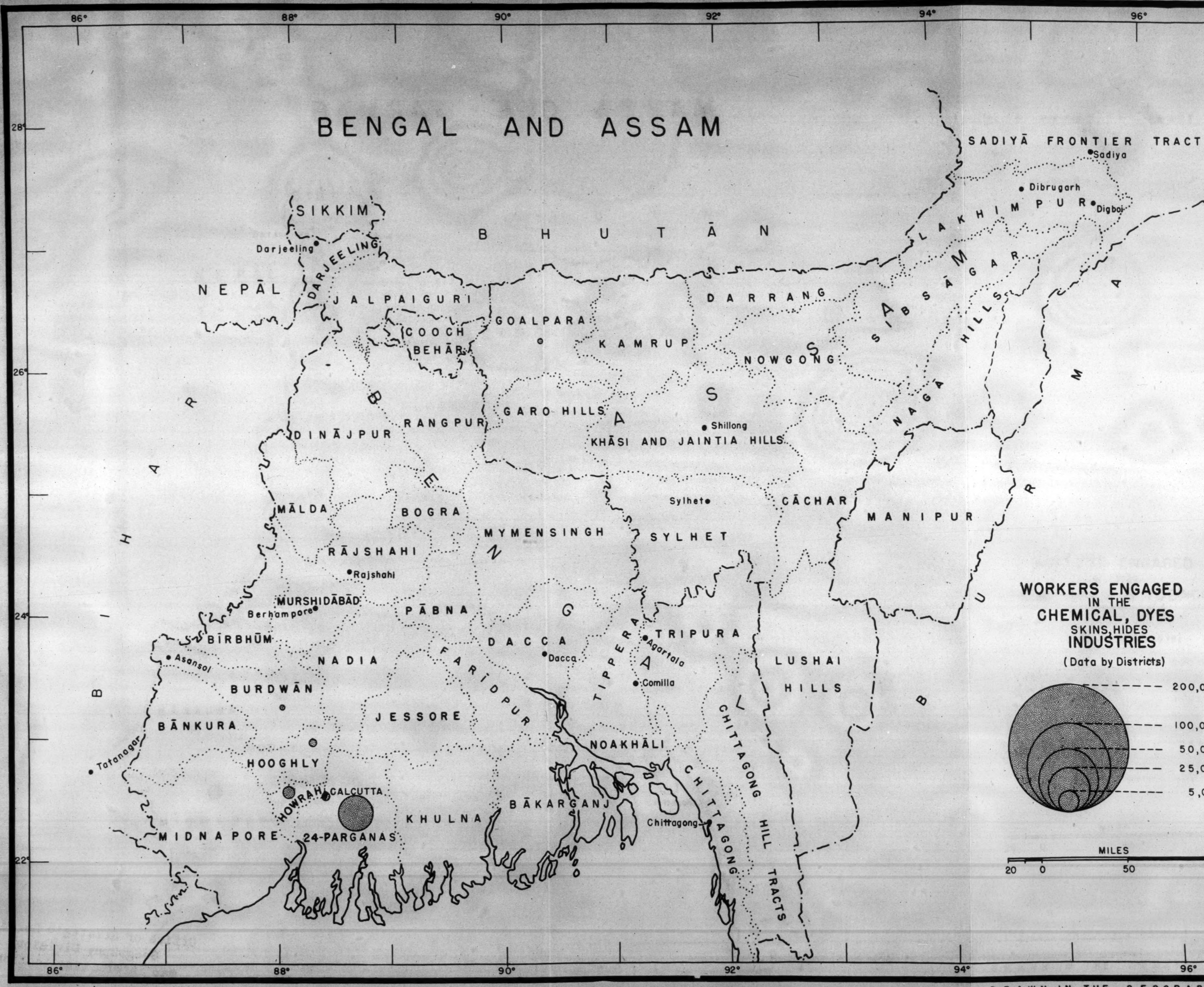
BENGAL AND ASSAM



WORKERS ENGAGED IN THE CHEMICAL, DYES SKINS, HIDES INDUSTRIES

(Data by Districts)

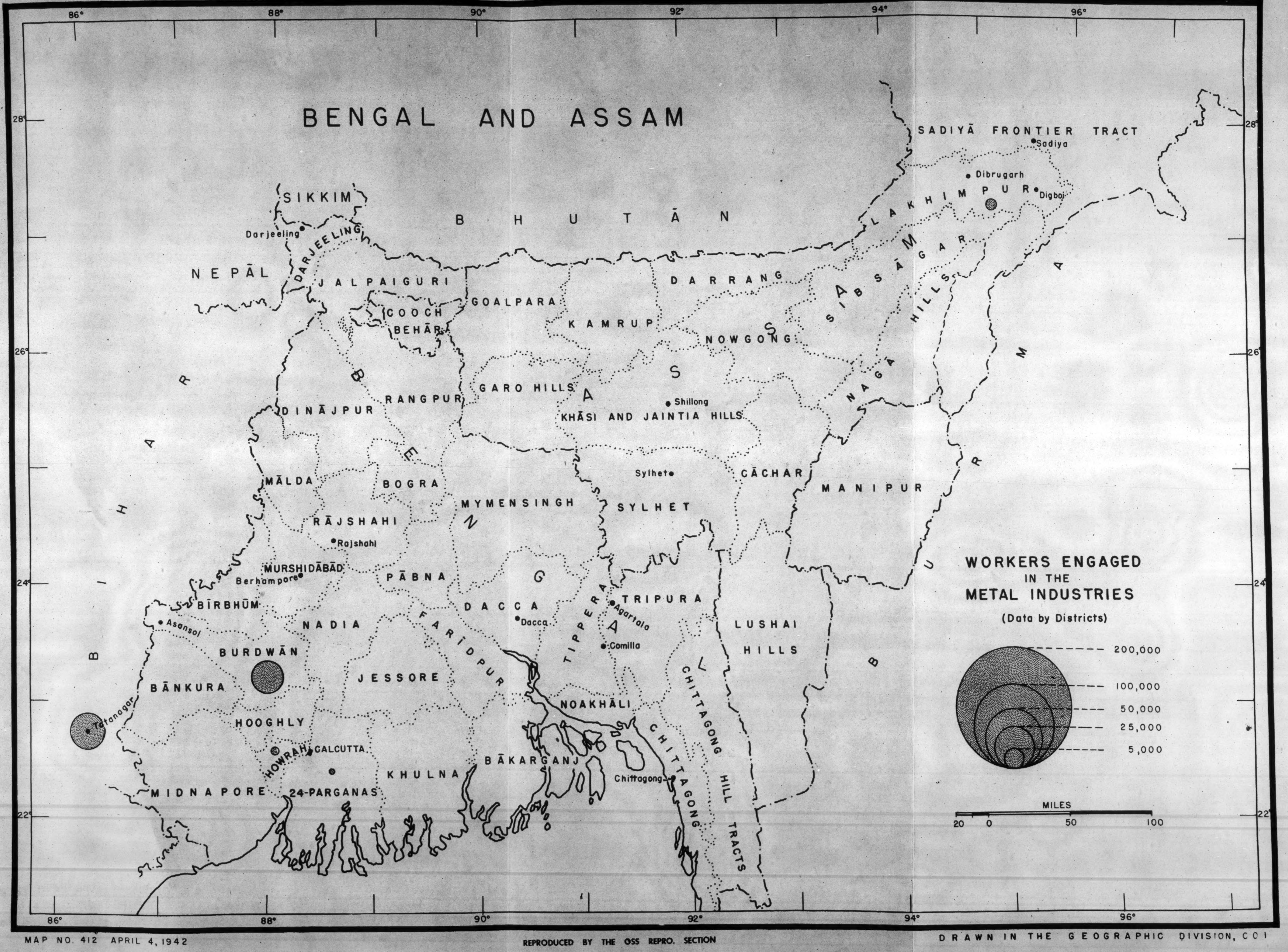
86°
88°
90°
92°
94°
96°
28°
26°
24°
22°
SIKKIM
Darjeeling
DARJEELING
NEPĀL
BHUTĀN
JALPAIGURI
COOCH BEHĀR
GOALPARA
KAMRUP
DARRANG
NOWGONG
SIBSĀGAR
LAKHIMPUR
SADIYĀ FRONTIER TRACT
Sadiya
Dibrugarh
Digboi
NAGA HILLS
ASSAM
BURMA
BIHAR
BENGAL
DINĀJPUR
RANGPUR
GARO HILLS
KHĀSI AND JAINTIA HILLS
Shillong
Sylhet
SYLHET
CĀCHAR
MANIPUR
MĀLDA
BOGRA
MYMENSINGH
RĀJSHAHI
Rajshahi
MURSHIDĀBĀD
Berhampore
PĀBNA
BĪRBHŪM
Asansol
NADIA
DACCA
Dacca
FARĪDPUR
TIPPERA
TRIPURA
Agartala
Comilla
LUSHAI HILLS
BURDWĀN
BĀNKURA
JESSORE
HOOGHLY
Tatanagar
HOWRAH
CALCUTTA
24-PARGANAS
MIDNAPORE
KHULNA
BĀKARGANJ
NOAKHĀLI
CHITTAGONG
Chittagong
CHITTAGONG HILL TRACTS
200,000
100,000
50,000
25,000
5,000
MILES
20
0
50
100

MAP NO. 414 APRIL 4, 1942

REPRODUCED BY THE OSS REPRO. SECTION

DRAWN IN THE GEOGRAPHIC DIVISION, C.O.I.

FREE


BENGAL AND ASSAM
WORKERS ENGAGED IN THE METAL INDUSTRIES
(Data by Districts)
200,000
100,000
50,000
25,000
5,000
MILES
20
0
50
100
86°
88°
90°
92°
94°
96°
28°
26°
24°
22°
SADIYĀ FRONTIER TRACT
Sadiya
Dibrugarh
Digboi
LAKHIMPUR
SIBSĀGAR
NAGĀ HILLS
SIKKIM
Darjeeling
DARJEELING
BHUTĀN
NEPĀL
JALPAIGURI
COOCH BEHĀR
GOALPARA
KAMRUP
DARRANG
NOWGONG
ASSAM
BURMA
GARO HILLS
Shillong
KHĀSI AND JAINTIA HILLS
RANGPUR
DINĀJPUR
BIHAR
BENGAL
MĀLDA
BOGRA
MYMENSINGH
Sylhet
SYLHET
CĀCHAR
MANIPUR
RĀJSHAHI
Rajshahi
MURSHIDĀBĀD
Berhampore
PĀBNA
DACCA
Dacca
TIPPERA
TRIPURA
Agartala
Comilla
LUSHAI HILLS
BĪRBHŪM
Asansol
NADIA
BURDWĀN
FARĪDPUR
JESSORE
BĀNKURA
Tatanagar
HOOGHLY
NOAKHĀLI
CHITTAGONG
CHITTAGONG HILL TRACTS
HOWRAH
CALCUTTA
KHULNA
BĀKARGANJ
Chittagong
MIDNAPORE
24-PARGANAS

MAP NO. 412 APRIL 4, 1942

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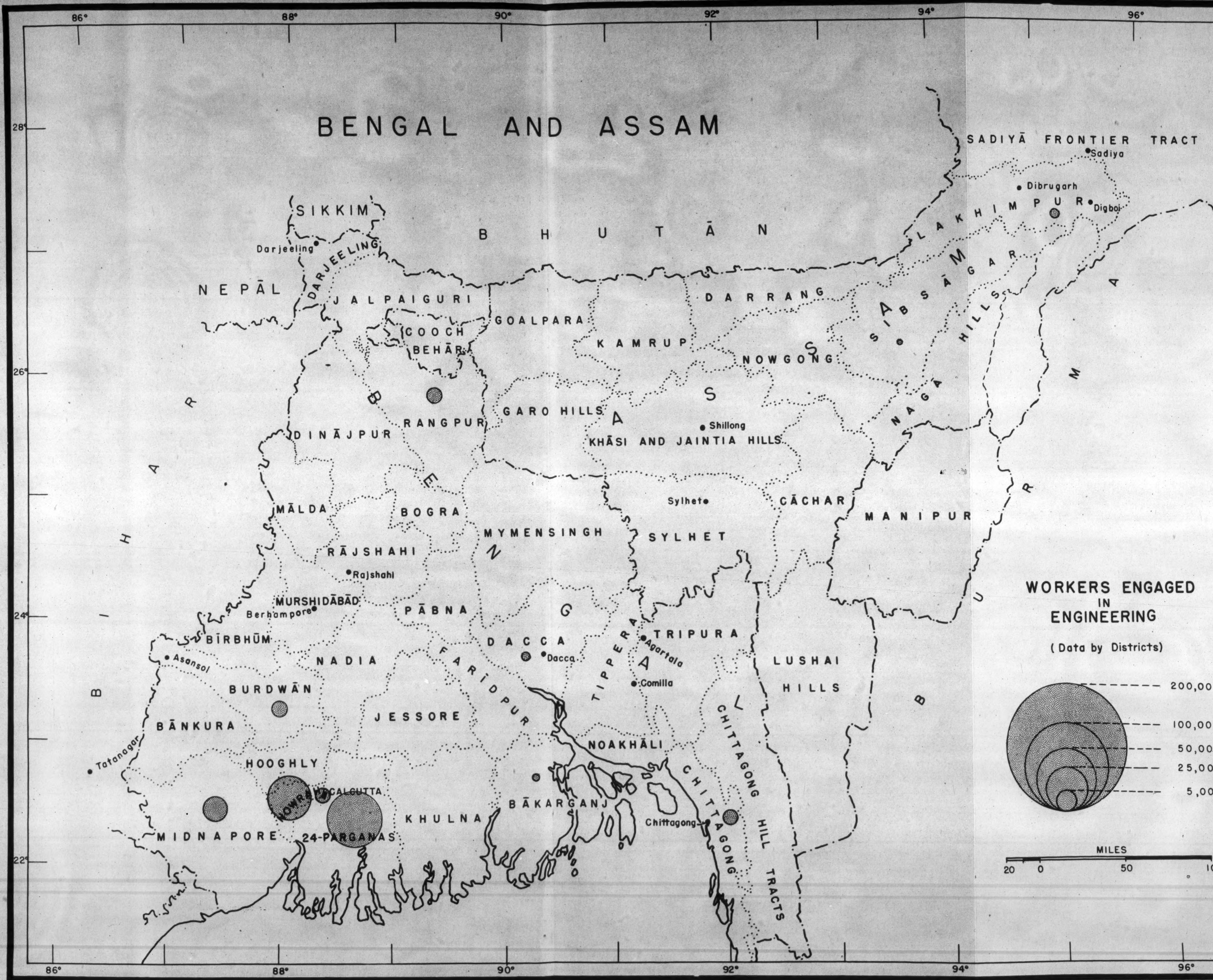
BENGAL AND ASSAM
WORKERS ENGAGED IN ENGINEERING
(Data by Districts)
200,000
100,000
50,000
25,000
5,000
MILES
20
0
50
100
86°
88°
90°
92°
94°
96°
28°
26°
24°
22°
SIKKIM
Darjeeling
DARJEELING
NEPĀL
BHUTĀN
JALPAIGURI
COOCH BEHĀR
GOALPARA
KAMRUP
DARRANG
NOWGONG
SADIYĀ FRONTIER TRACT
Sadiya
Dibrugarh
LAKHIMPUR
Digboi
SIBSĀGAR
NAGA HILLS
ASSAM
BURMA
BIHAR
BENGAL
RANGPUR
DINĀJPUR
GARO HILLS
Shillong
KHĀSI AND JAINTIA HILLS
Sylhet
SYLHET
CĀCHAR
MANIPUR
MĀLDA
BOGRA
MYMENSINGH
RĀJSHAHI
Rajshahi
MURSHIDĀBĀD
Berhampore
PĀBNA
BĪRBHŪM
Asansol
NADIA
DACCA
Dacca
FARIDPUR
TIPPERA
TRIPURA
Agartala
Comilla
LUSHAI HILLS
BURDWĀN
BĀNKURA
JESSORE
NOAKHĀLI
CHITTAGONG
CHITTAGONG HILL TRACTS
Tatanagar
HOOGHLY
HOWRAH
CALCUTTA
24-PARGANAS
KHULNA
BĀKARGANJ
Chittagong
MIDNAPORE

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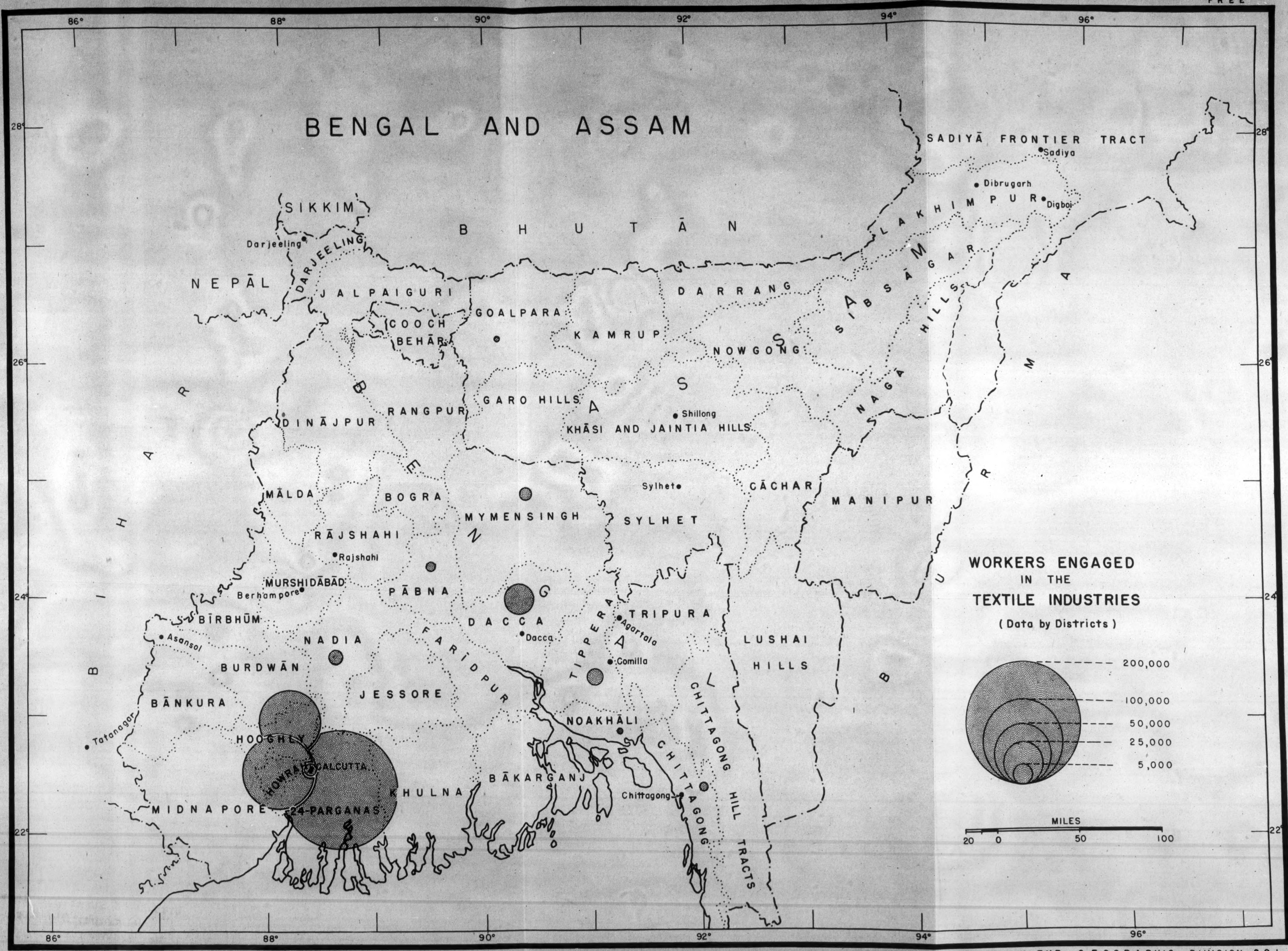

BENGAL AND ASSAM

WORKERS ENGAGED IN THE TEXTILE INDUSTRIES

(Data by Districts)

86°
88°
90°
92°
94°
96°
28°
26°
24°
22°
SIKKIM
BHUTĀN
NEPĀL
Darjeeling
DARJEELING
JALPAIGURI
COOCH BEHĀR
GOALPARA
KAMRUP
DARRANG
NOWGONG
SIBSĀGAR
LAKHIMPUR
SADIYĀ FRONTIER TRACT
Sadiya
Dibrugarh
Digboi
NAGĀ HILLS
GARO HILLS
Shillong
KHĀSI AND JAINTIA HILLS
ASSAM
BENGAL
BIHAR
BURMA
DINĀJPUR
RANGPUR
MĀLDA
BOGRA
MYMENSINGH
Sylhet
SYLHET
CĀCHAR
MANIPUR
RĀJSHAHI
Rajshahi
MURSHIDĀBĀD
Berhampore
PĀBNA
DACCA
Dacca
TIPPERA
TRIPURA
Agartala
Comilla
LUSHAI HILLS
BĪRBHŪM
Asansol
NADIA
BURDWĀN
FARĪDPUR
JESSORE
BĀNKURA
Tatanagar
HOOGHLY
HOWRAH
CALCUTTA
24-PARGANAS
KHULNA
BĀKARGANJ
NOAKHĀLI
Chittagong
CHITTAGONG
CHITTAGONG HILL TRACTS
MIDNAPORE
200,000
100,000
50,000
25,000
5,000
MILES
20
0
50
100

MAP NO. 410 APRIL 4, 1942

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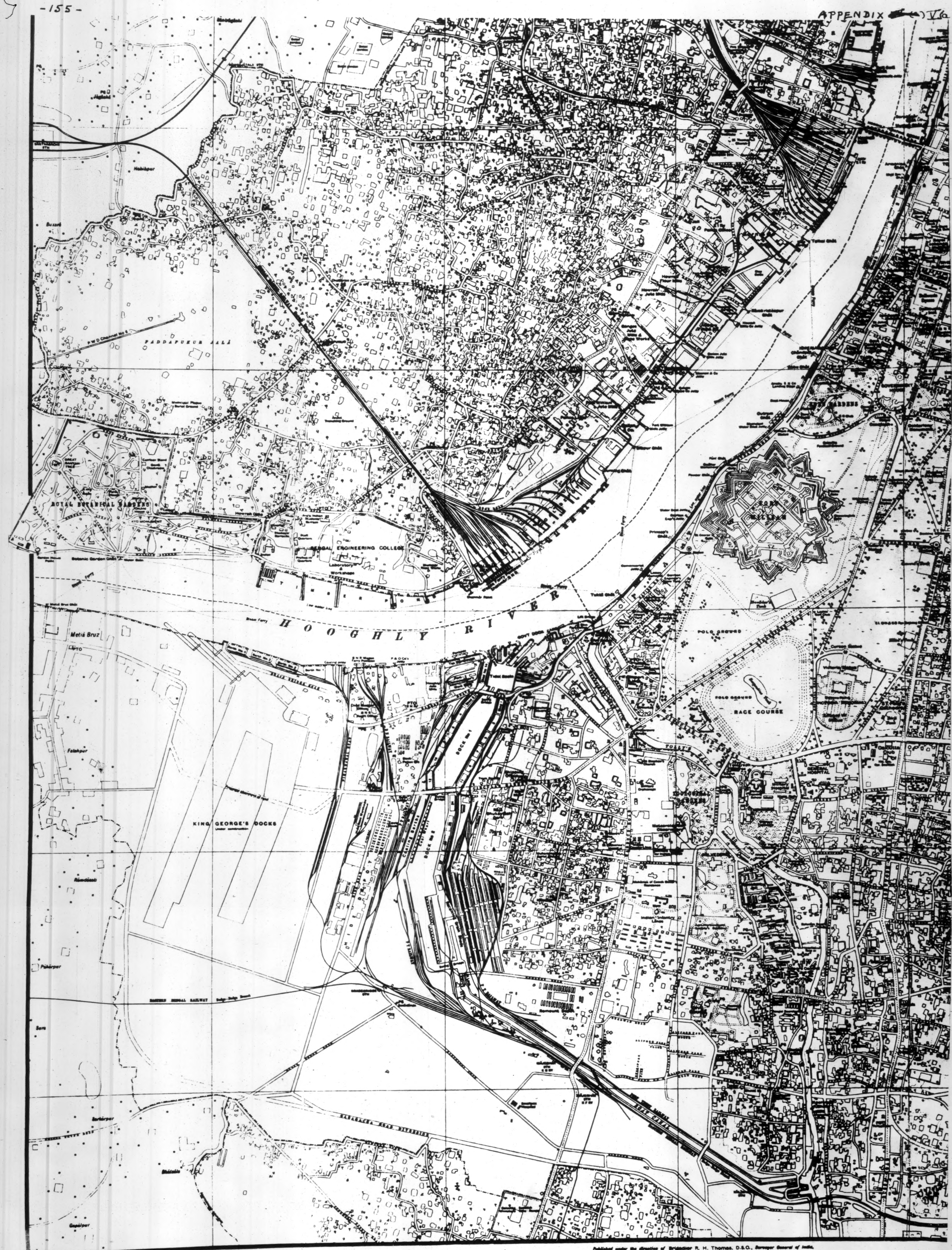
-155-

APPENDIX (a) V(a


Hajilahi
Habibpur
Buzara
P W D Channel No 5
PADDAPUKUR JALA
Municipal Pliapur Burial Ground
GREAT BANYAN TREE
Cartbon Band
ROYAL BOTANICAL GARDENS
KYD MONUMENT
Howrah Ghat
Garden House Point
Botanic Garden Ghat
Water Gate
Steam Ferry
BENGAL ENGINEERING COLLEGE
Laboratory & Workshops
Low water line
Metia Bruz Ghat
Metia Bruz
PTO
Berth No 1
B N R Wagon Ferry Pontoon
P & O Co's Jetty
HOOGHLY RIVER
Fatehpur
KING GEORGE'S DOCKS
Ramdaspur
Pitharpur
Sora
Barbarpur
Shibtala
Gopalpur
EDEN GARDENS
FORT WILLIAM
POLO GROUND
RACE COURSE
DOCK No 1
DOCK No 2
Calcutta Club
TOLLY'S NALA

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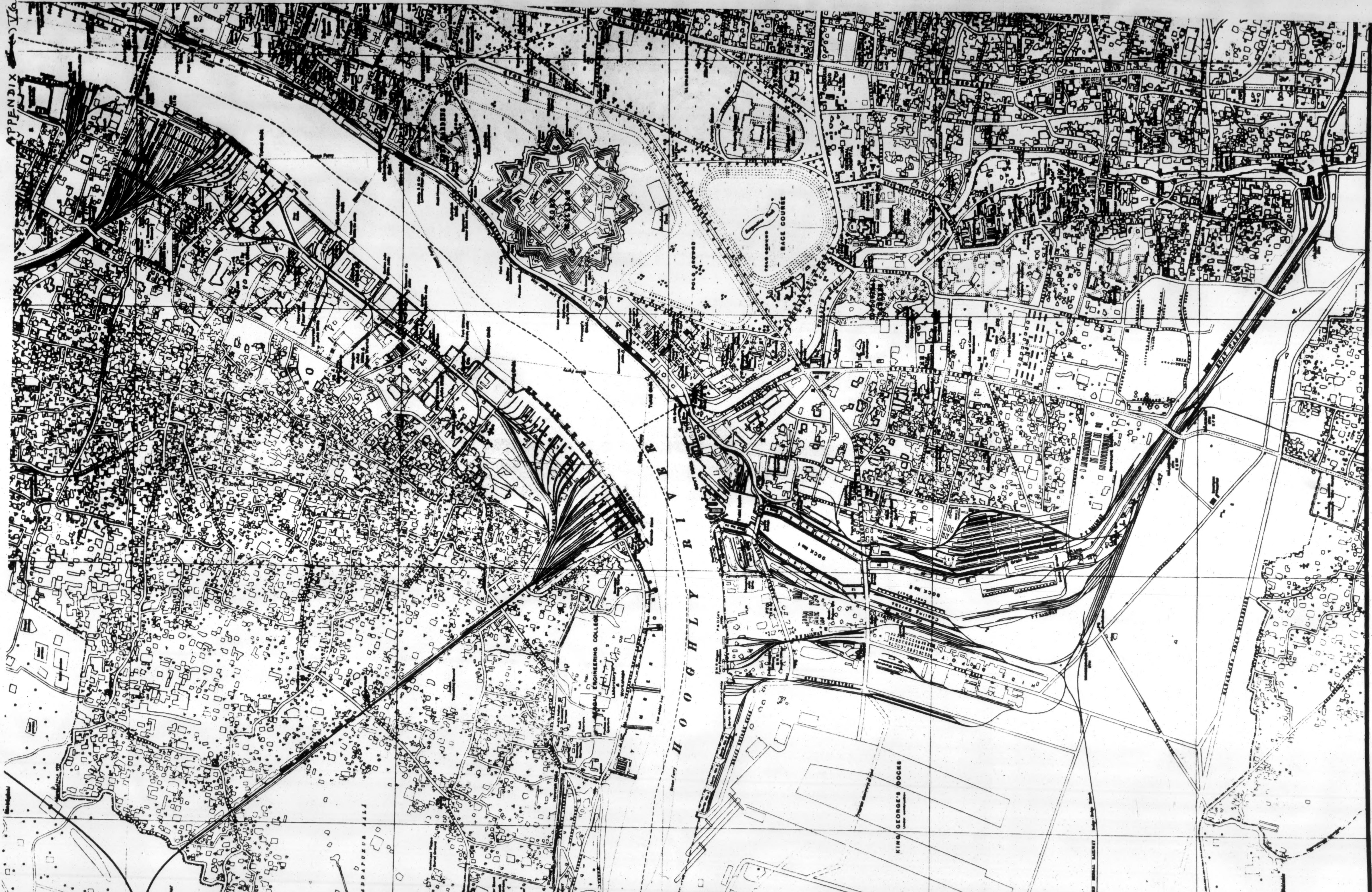
Published under the direction of Brigadier R. H. Thomas, D.S.O., *Surveyor General of India.*
1929.

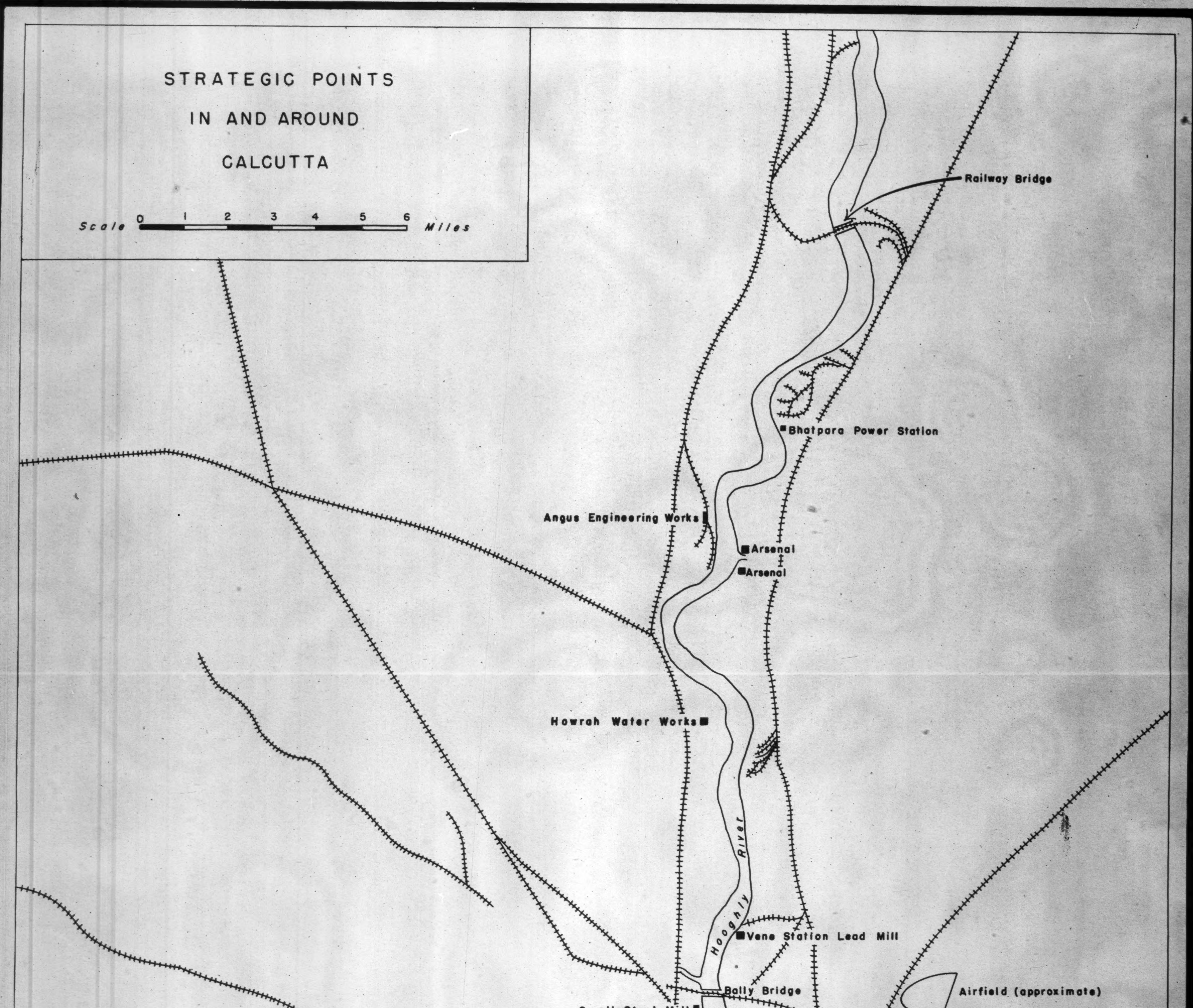
APPENDIX VIa


HOOGHLY RIVER
KING GEORGE'S DOCKS
RACE COURSE
POLO GROUNDS
BENGAL ENGINEERING COLLEGE
ROYAL BOTANICAL GARDEN
DOCK No 1
DOCK No 2
Metia Bruz

Published under the direction of Brigadier R. H. Thomas, D.S.O., Surveyor General of India. 1929

REPRODUCED BY THE OSS REPRO. SECTION

STRATEGIC POINTS
IN AND AROUND
CALCUTTA


Scale 0 1 2 3 4 5 6 Miles
Railway Bridge
Bhatpara Power Station
Angus Engineering Works
Arsenal
Arsenal
Howrah Water Works
Hooghly River
Vene Station Lead Mill
Bally Bridge
Airfield (approximate)
Dum Dum Cant Sta
Small Steel Mill
Aluminum Plant
East India R. Workshop
Powerhouse
Gun and Shell Factory (Arsenal)
Dum Dum Jun.
Tala Reservoir
Gas Works
Howrah Bridge
Shipbuilding Yard and Docks
Shalimar Station (coal)
Howrah Station
Bengal Engineering College Workshops
Mints
Armenian Ghat
G.P.O.
Telegraph Office
Government House
Bengal Chemical Works
Gas Works
Sealdah Station
Legislative Chamber
Port Trust Ry.
Fort William
Sewage Outlet
Shalimar Pt.
IGN and R's Co's Docks
Government Dock Yards
Powerhouse
Nonapukar Tramworks
Airfield
Barracks
Ship Repair Facilities
King George's Docks
Kidderpore Docks
Viceroy's House
Cement Works
Telegraph Office
Budge Budge Petroleum Depot
Diamond Harbor Road
Telegraph Office

MAP NO. 408 APRIL 2, 1942

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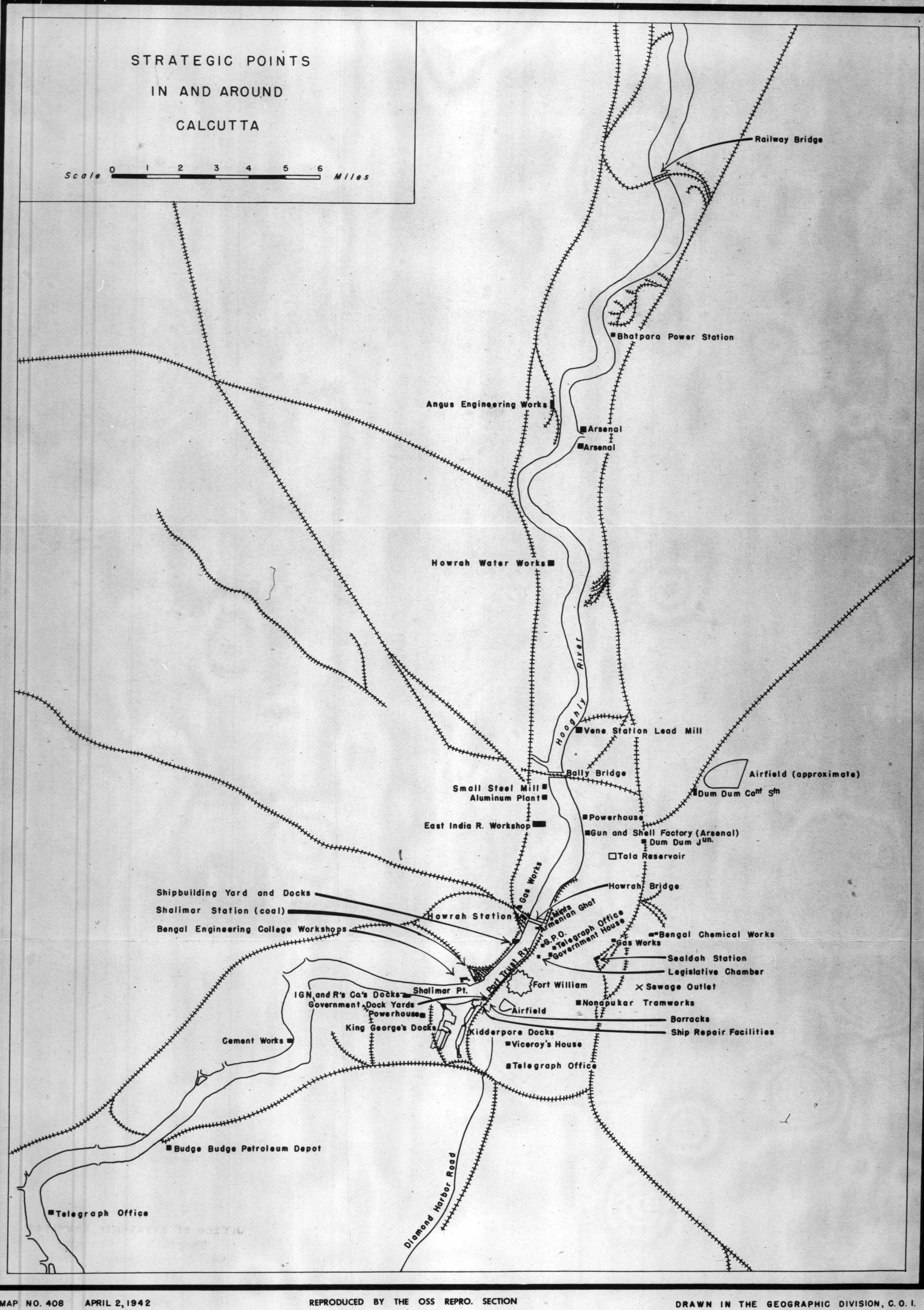
RESTRICTED

STRATEGIC POINTS IN AND AROUND CALCUTTA


Scale 0 1 2 3 4 5 6 Miles
Railway Bridge
Bhatpara Power Station
Angus Engineering Works
Arsenal
Arsenal
Howrah Water Works
Hooghly River
Vene Station Lead Mill
Bally Bridge
Airfield (approximate)
Dum Dum Cant Stn
Small Steel Mill
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Powerhouse
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Tala Reservoir
Gas Works
Howrah Bridge
Shipbuilding Yard and Docks
Shalimar Station (coal)
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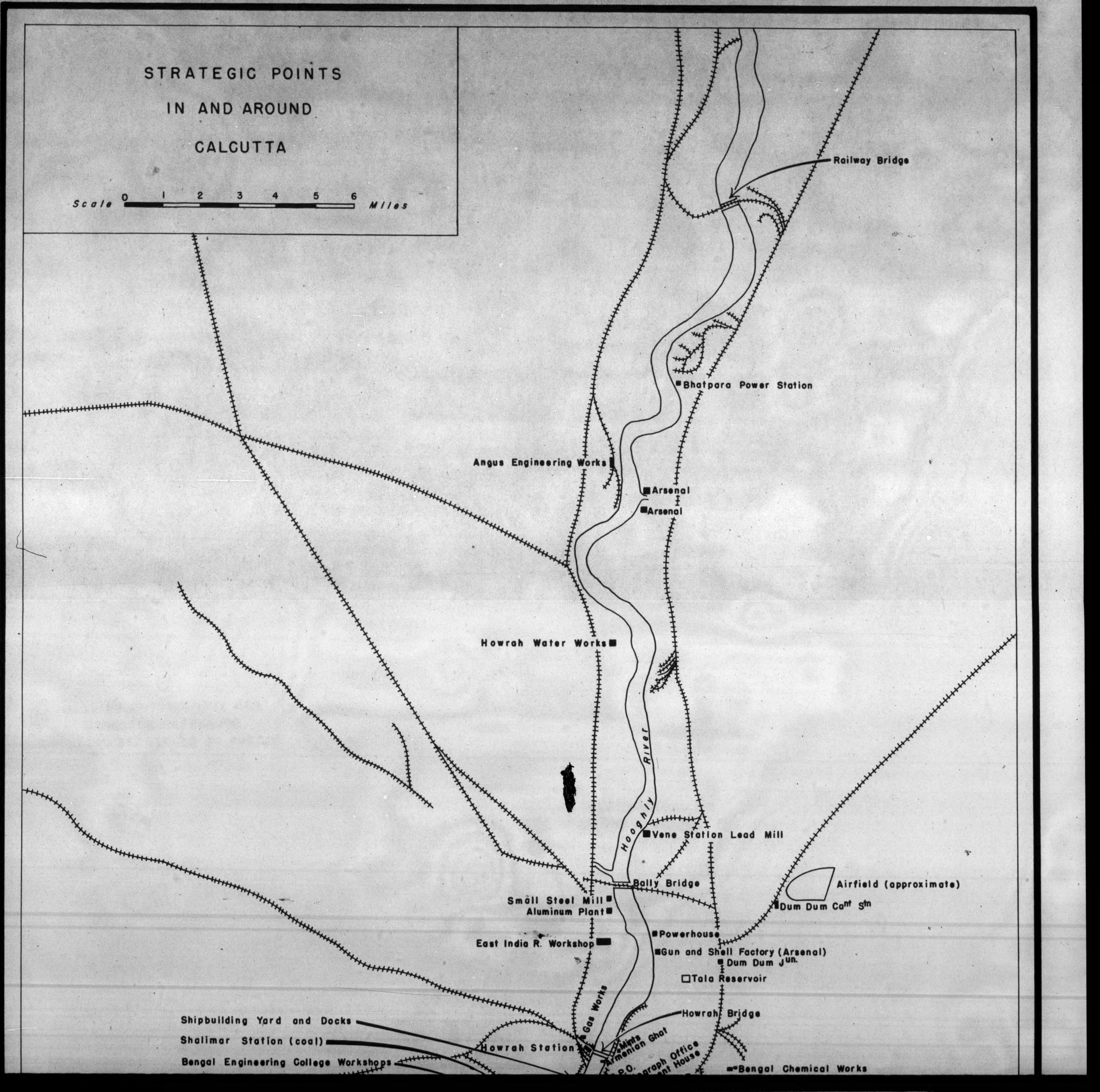
Mints
Armenian Ghat
Bengal Engineering College Workshops
G.P.O.
Telegraph Office
Government House
Bengal Chemical Works
Gas Works
Sealdah Station
Legislative Chamber
Fort William
Sewage Outlet
Port Trust Ry.
Shalimar Pt.
IGN and R's Co's Docks
Government Dock Yards
Powerhouse
Nonapukar Tramworks
Airfield
Barracks
Ship Repair Facilities
King George's Docks
Kidderpore Docks
Cement Works
Viceroy's House
Telegraph Office
Budge Budge Petroleum Depot
Telegraph Office
Diamond Harbor Road

MAP NO. 408 APRIL 2, 1942 REPRODUCED BY THE OSS REPRO. SECTION DRAWN IN THE GEOGRAPHIC DIVISION, C.O.I.

STRATEGIC POINTS IN AND AROUND CALCUTTA


Scale 0 1 2 3 4 5 6 Miles
Railway Bridge
Bhatpara Power Station
Angus Engineering Works
Arsenal
Arsenal
Howrah Water Works
Hooghly River
Vene Station Lead Mill
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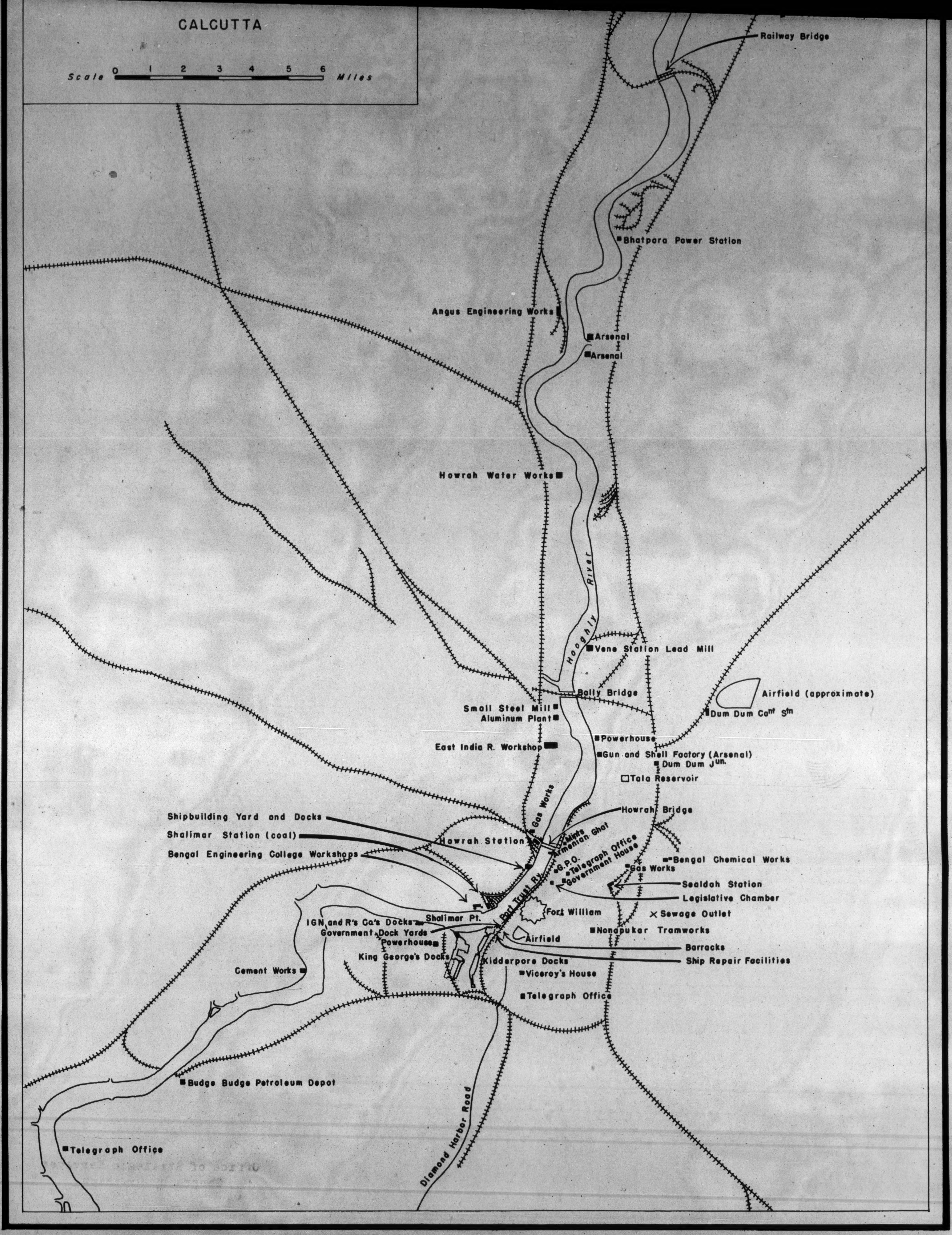
Shipbuilding Yard and Docks
Howrah Bridge
Shalimar Station (coal)
Mints
Armenian Ghat
Howrah Station
graph Office
nt House
P.O.
Bengal Engineering College Workshops
Bengal Chemical Works


CALCUTTA
Scale 0 1 2 3 4 5 6 Miles
Railway Bridge
Bhatpara Power Station
Angus Engineering Works
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Vene Station Lead Mill
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Telegraph Office
Budge Budge Petroleum Depot
Diamond Harbor Road
Telegraph Office

MAP NO. 408 APRIL 2, 1942

REPRODUCED BY THE OSS REPRO. SECTION

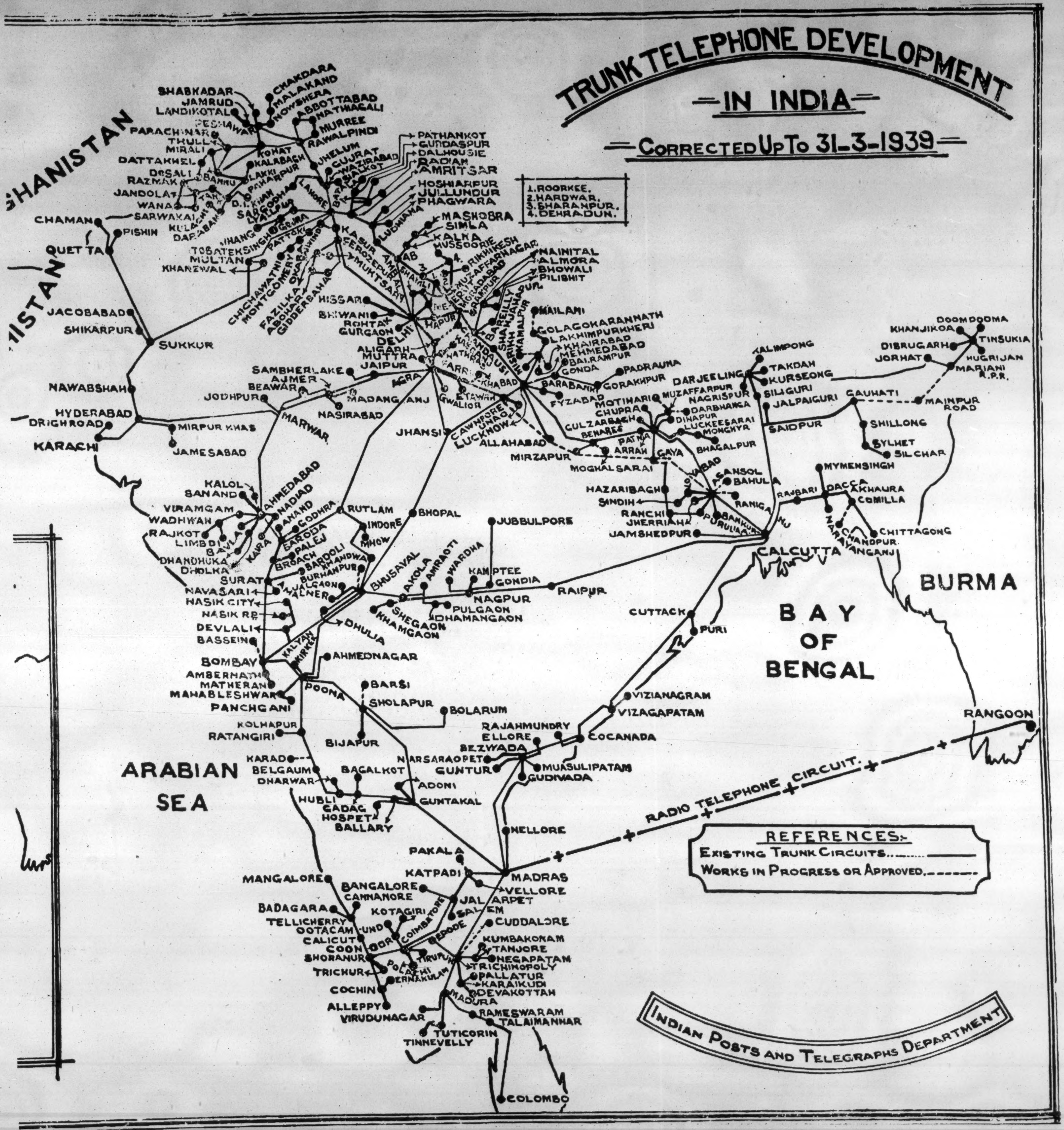
DRAWN IN THE GEOGRAPHIC DIVISION, C.O.I.

DECLASSIFIED: Unless specifically marked, reports dated thro

TRUNK TELEPHONE DEVELOPMENT

-IN INDIA-

-CORRECTED UP TO 31-3-1939-


1. ROORKEE.
2. HARDWAR.
3. SHARANPUR.
4. DEHRADUN.
AFGHANISTAN
BALUCHISTAN
ARABIAN SEA
BAY OF BENGAL
BURMA
RADIO TELEPHONE CIRCUIT.
SHABKADAR
JAMRUD
LANDIKOTAL
PESHAWAR
CHAKDARA
MALAKAND
NOWSHERA
ABBOTTABAD
NATHIAGALI
MURREE
RAWALPINDI
PARACHINAR
THULL
MIRALI
KOHAT
KALABAGH
DATTAKHEL
DOSALI
BANNU
RAZMAK
JANDOLA
WANA
SARWAKAI
KULACHI
DARABAN
LAKKI
D.I. KHAN
PAHARPUR
JHELUM
GUJRAT
WAZIRABAD
SIALKOT
LAHORE
SARGODHA
LYALLPUR
JHANG
TOBATEKSINGH
GOJRA
MULTAN
KHANEWAL
CHICHAWATNI
MONTGOMERY
FAZILKA
ABOHAR
GIDDERBAHA
KASUR
FEROZEPUR
MUKTSAR
PATHANKOT
GURDASPUR
DALHOUSIE
QADIAN
AMRITSAR
HOSHIARPUR
JULLUNDUR
PHAGWARA
LUDHIANA
MASHOBRA
SIMLA
KALKA
AMBALA
MUSSOORIE
RIKHIKESH
MUZAFFARNAGAR
NAINITAL
ALMORA
BHOWALI
PILIBHIT
BAREILLY
SHAHJAHANPUR
CHAMAN
PISHIN
QUETTA
JACOBABAD
SHIKARPUR
SUKKUR
NAWABSHAH
HYDERABAD
DRIGHROAD
KARACHI
MIRPUR KHAS
JAMESABAD
HISSAR
BHIWANI
ROHTAK
GURGAON
DELHI
HAPUR
ALIGARH
MUTTRA
JAIPUR
AGRA
HATHRAS
FARRUKHABAD
ETAWAH
GWALIOR
JHANSI
CAWNPORE
UNAO
LUCKNOW
ALLAHABAD
MIRZAPUR
MOGHALSARAI
SAMBHERLAKE
AJMER
BEAWAR
JODHPUR
MADANGANJ
NASIRABAD
MARWAR
MAILANI
GOLAGOKARANNATH
LAKHIMPURKHERI
KHAIRABAD
MEHMEDABAD
BALRAMPUR
GONDA
BARABANKI
FYZABAD
PADRAUNA
GORAKHPUR
MOTIHARI
MUZAFFARPUR
NAGRISPUR
DARBHANGA
CHUPRA
DINAPUR
GULZARBAGH
LUCKEESARAI
MONGHYR
BENARES
PATNA
ARRAH
GAYA
BHAGALPUR
DARJEELING
KALIMPONG
TAKDAH
KURSEONG
SILIGURI
JALPAIGURI
SAIDPUR
GAUHATI
MAINPUR ROAD
SHILLONG
SYLHET
SILCHAR
DOOMDOOMA
KHANJIKOA
TINSUKIA
DIBRUGARH
HUGRIJAN
JORHAT
MARIANI R.P.R.
MYMENSINGH
RAJBARI
DACCA
AKHAURA
COMILLA
NARAYANGANJ
CHANDPUR
CHITTAGONG
DHANBAD
ASANSOL
BAHULA
HAZARIBAGH
SINDIH
RANCHI
JHERRIAH
PURULIA
BANKURA
RANIGANJ
JAMSHEDPUR
CALCUTTA
CUTTACK
PURI
KALOL
SANAND
AHMEDABAD
VIRAMGAM
WADHWAN
NADIAD
ANAND
GODHRA
RAJKOT
LIMBDI
BAVLA
KAIRA
BARODA
PALEJ
DHANDHUKA
DHOLKA
BROACH
BARDOLI
SURAT
NAVASARI
HASIK CITY
HASIK RD
DEVLALI
BASSEIN
BOMBAY
AMBERNATH
MATHERAN
MAHABLESHWAR
PANCHGANI
KALYAN
KIRKEE
POONA
AHMEDNAGAR
DHULIA
RUTLAM
INDORE
MHOW
BHOPAL
KHANDWA
BURHANPUR
JALGAON
AMALNER
BHUSAVAL
AKOLA
AMRAOTI
WARDHA
SHEGAON
KHAMGAON
PULGAON
DHAMANGAON
KAMPTEE
GONDIA
NAGPUR
RAIPUR
JUBBULPORE
BARSI
SHOLAPUR
BOLARUM
BIJAPUR
KOLHAPUR
RATANGIRI
KARAD
BELGAUM
DHARWAR
BAGALKOT
HUBLI
GADAG
HOSPET
BALLARY
ADONI
GUNTAKAL
VIZIANAGRAM
VIZAGAPATAM
RAJAHMUNDRY
ELLORE
COCANADA
BEZWADA
NARSARAOPET
GUNTUR
MUASULIPATAM
GUDIVADA
NELLORE
PAKALA
KATPADI
MADRAS
VELLORE
JALARPET
SALEM
CUDDALORE
MANGALORE
BANGALORE
CANNANORE
BADAGARA
TELLICHERRY
OOTACAMUND
KOTAGIRI
COIMBATORE
ERODE
CALICUT
COONOOR
SHORANUR
POLLACHI
TIRUPUR
TRICHUR
ERNAKULAM
COCHIN
ALLEPPY
KUMBAKONAM
TANJORE
NEGAPATAM
TRICHINOPOLY
PALLATUR
KARAIKUDI
DEVAKOTTAH
MADURA
VIRUDUNAGAR
RAMESWARAM
TALAIMANNAR
TUTICORIN
TINNEVELLY
COLOMBO
RANGOON

REFERENCES:-

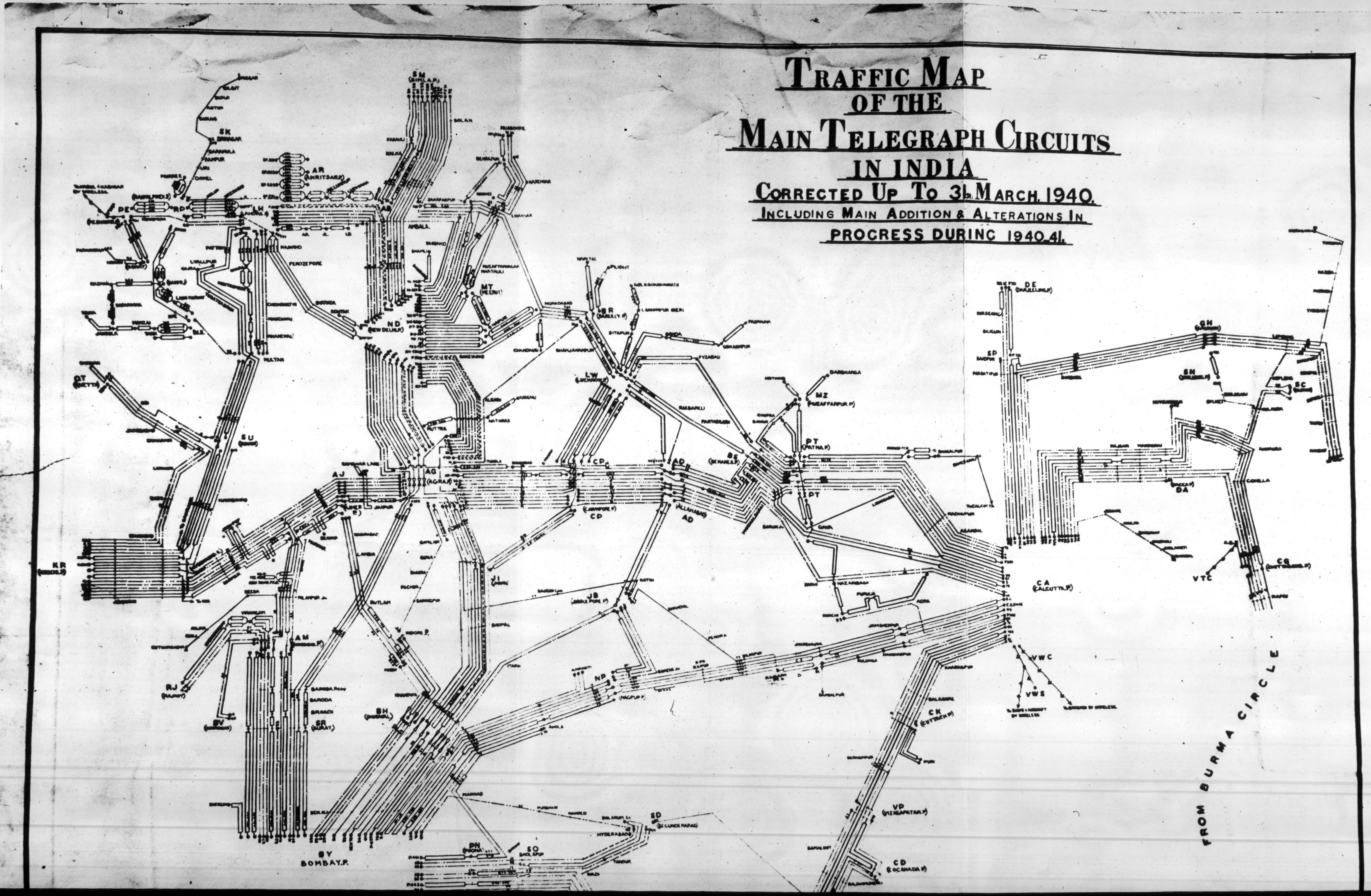
EXISTING TRUNK CIRCUITS	———
WORKS IN PROGRESS OR APPROVED	- - - - -

INDIAN POSTS AND TELEGRAPHS DEPARTMENT

TRAFFIC MAP OF THE MAIN TELEGRAPH CIRCUITS IN INDIA

CORRECTED UP TO 31st MARCH. 1940.

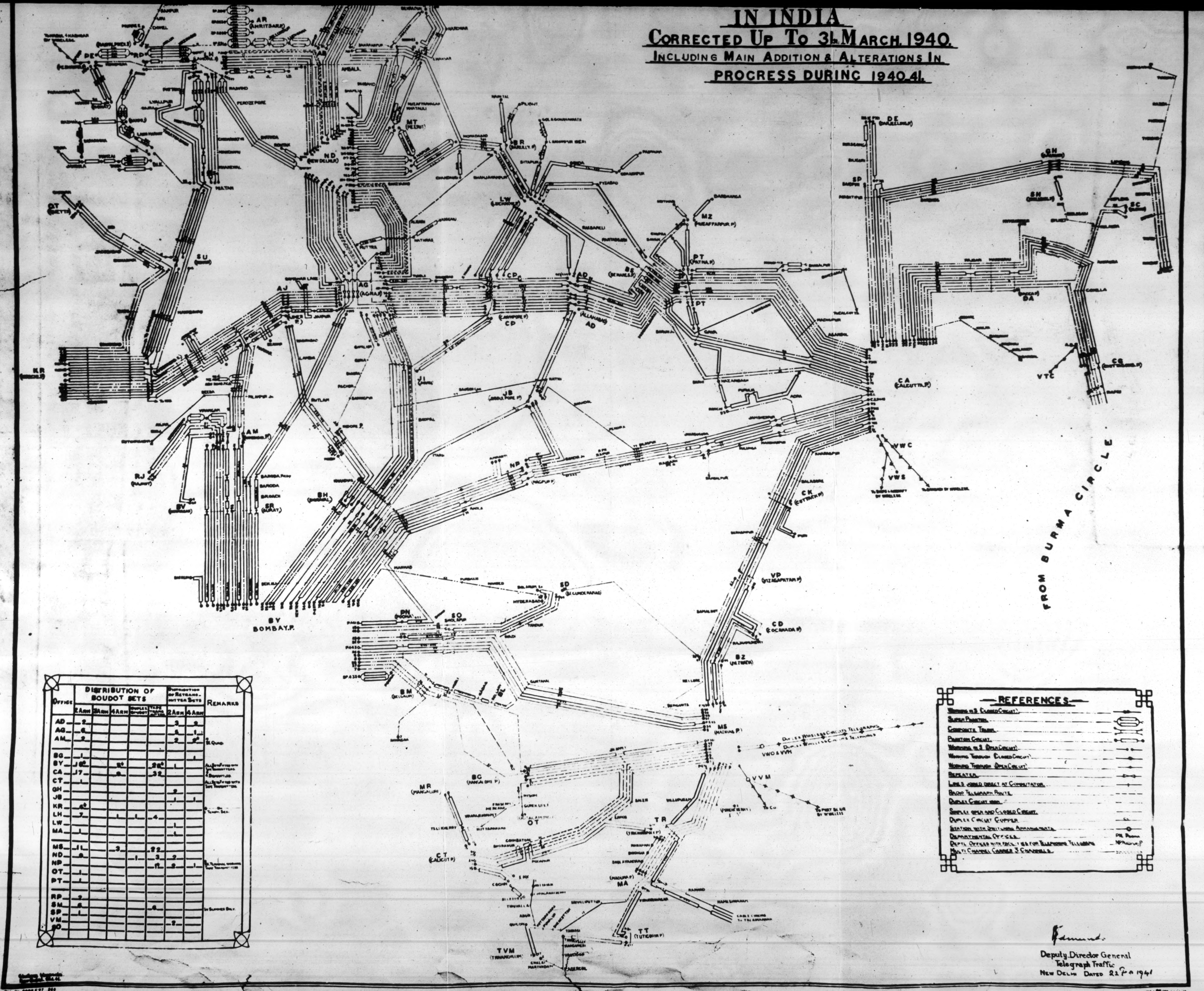
INCLUDING MAIN ADDITION & ALTERATIONS IN PROGRESS DURING 1940.41.


SM (SIMLA.P.)
SOLAN
KALKA
MUSSOORIE
DEHRA DUN
HARDWAR
LHAKSAR
SAHARANPUR
AMBALA
AB
SK SRINAGAR
GILGIT
ASTOR
BARAMULA
URI
DOMEL
PE (PESHAWAR)
RP (RAWALPINDI.P.)
LH (LAHORE.P.)
AR (AMRITSAR.P.)
TO KABUL & KASHGAR BY WIRELESS
LYALLPUR
FEROZEPORE
BHATINDA
ROHTAK
MULTAN
ND (NEW DELHI.P.)
MT (MEERUT)
MUZAFFARNAGAR
KHATAULI
HAPUR
GHAZIABAD
CHANDAUSI
MORADABAD
NAINI TAL
PILIBHIT
GOLA GOKARANNATH
LAKHIMPUR KHERI
BR (BAREILLY.P.)
SITAPUR
SHAHJAHANPUR
GONDA
GORAKHPUR
FYZABAD
RAE BARELI
PARTABGARH
LW (LUCKNOW.P.)
DARBHANGA
MZ (MUZAFFARPUR.P.)
CHAPRA
PT (PATNA.P.)
PT
BHAGALPUR
BS (BENARES.P.)
CP (CAWNPORE.P.)
CP
AD (ALLAHABAD)
AD
GAYA
HAZARIBAGH
ASANSOL
ADRA
TO CALCUTTA
KATNI
JB (JUBBULPORE.P.)
QT (QUETTA)
SU
AJ
AG (AGRA.P.)
MUTTRA
HATHRAS
ALIGARH
JAIPUR
JI (JHANSI)
RUTLAM
BHOPAL
ITARSI
KR (KARACHI.P.)
RJ (RAJKOT)
BV
AM (AHMEDABAD)
BARODA
BROACH
SR (SURAT)
BH (BHUSAWAL)
NP (NAGPUR.P.)
AKOLA
MANMAD
BY BOMBAY.P.
PN (POONA)
SO SHOLAPUR
SD (SECUNDERABAD.P.)
HYDERABAD
DE (DARJEELING.P.)
KURSEONG
SILIGURI
SP
PARBATIPUR
GH (GAUHATI)
SH (SHILLONG.P.)
SC (SILCHAR)
DA (DACCA.P.)
CG (CHITTAGONG.P.)
VTC
CA (CALCUTTA.P.)
VWC
VWS
TO BURMA & AIRCRAFT BY WIRELESS
TO SHIPS BY WIRELESS
JAMSHEDPUR
BALASORE
CK (CUTTACK.P.)
VP (VIZAGAPATAM.P.)
CD (COCANADA.P.)
FROM BURMA CIRCLE

IN INDIA

CORRECTED UP TO 31st MARCH. 1940.

INCLUDING MAIN ADDITION & ALTERATIONS IN PROGRESS DURING 1940-41.


DE
RP
LH
AR (AMRITSAR)
AB
AMBALA
FEROZEPORE
LYALLPUR
MULTAN
ND (NEW DELHI P)
MT (MEERUT)
BR (BAREILLY P)
LW (LUCKNOW P)
MZ (MUZAFFARPUR P)
PT (PATNA P)
BS (BENARES)
QT (QUETTA)
SU
AJ
AG (AGRA P)
CP (CAWNPORE P)
AD (ALLAHABAD)
KR (KARACHI)
RJ (RAJKOT)
BV
AM (AHMEDABAD P)
BARODA
BROACH
SR (SURAT)
BH (BHUSAWAL)
JB (JUBBULPORE P)
NP (NAGPUR P)
CA (CALCUTTA P)
DE (DARJEELING P)
GH
SH
SC
SP
DA (DACCA)
CG (CHITTAGONG P)
VTC
VWC
VWS
CK (CUTTACK P)
VP (VIZAGAPATAM P)
CD (COCANADA P)
BZ (BEZWADA)
SD (SECUNDERABAD)
HYDERABAD
PN (POONA)
SO
BY
BOMBAY. P.
BM (BELGAUM)
MS (MADRAS P)
VWO & VVH
VVM
BG (BANGALORE P)
MR (MANGALORE)
OT
CT (CALICUT P)
TR (TRICHINOPOLY P)
MA (MADURA P)
TT (TUTICORIN P)
TVM (TRIVANDRUM)
FROM BURMA CIRCLE

OFFICE	DISTRIBUTION OF BOUDOT SETS					DISTRIBUTION OF RETRANSMITTER SETS		REMARKS
	2 ARM	3 ARM	4 ARM	DUPLEX BOUDOT	TAPE TRANSMITTER	2 ARM	4 ARM	
AD	2					3	2	
AG	6					5	1	
AM	2					2	2*	* 1 Quad.
BG	1						1	
BY	16*		5*		28*	1		All Sets Fitted with Tape Transmitters.
CA	17		8		32			* 4 Dismantled.
CT	1							All Sets Fitted with Tape Transmitters.
GH						2		
JB						1	1	
KR	6*							* — Do — Tempy. Sets.
LH	7		1	1	4			
LW						1		
MA	1					1		
MS	11		3		22			
ND	9			1	3	2		
NP					12	2	1	1 Terminal working Tape Transmitter
OT	1							
PT	1							
RP	2							
SM	6				6			In Summer Only.
SP	1							
VM						2		
SO								

REFERENCES

Working in S (Closed Circuit).
Super Phantom.
Composite Trunk.
Phantom Circuit.
Working in S (Open Circuit).
Working Through (Closed Circuit).
Working Through (Open Circuit).
Repeater.
Lines joined direct at Commutator.
Radio Telegraph Route.
Duplex Circuit iron.
Simplex open and Closed Circuit.
Duplex Circuit Copper.
Station with Switching Arrangements.
Departmental Offices. — PN. Poona
Deptl. Offices with facilities for Telephone Telegrams — NP. Nagpur. P
Multi Channel Carrier 3 Channels.

Edmunds
Deputy Director General
Telegraph Traffic
New Delhi Dated 22 Feb 1941